DOCKET SEARCH

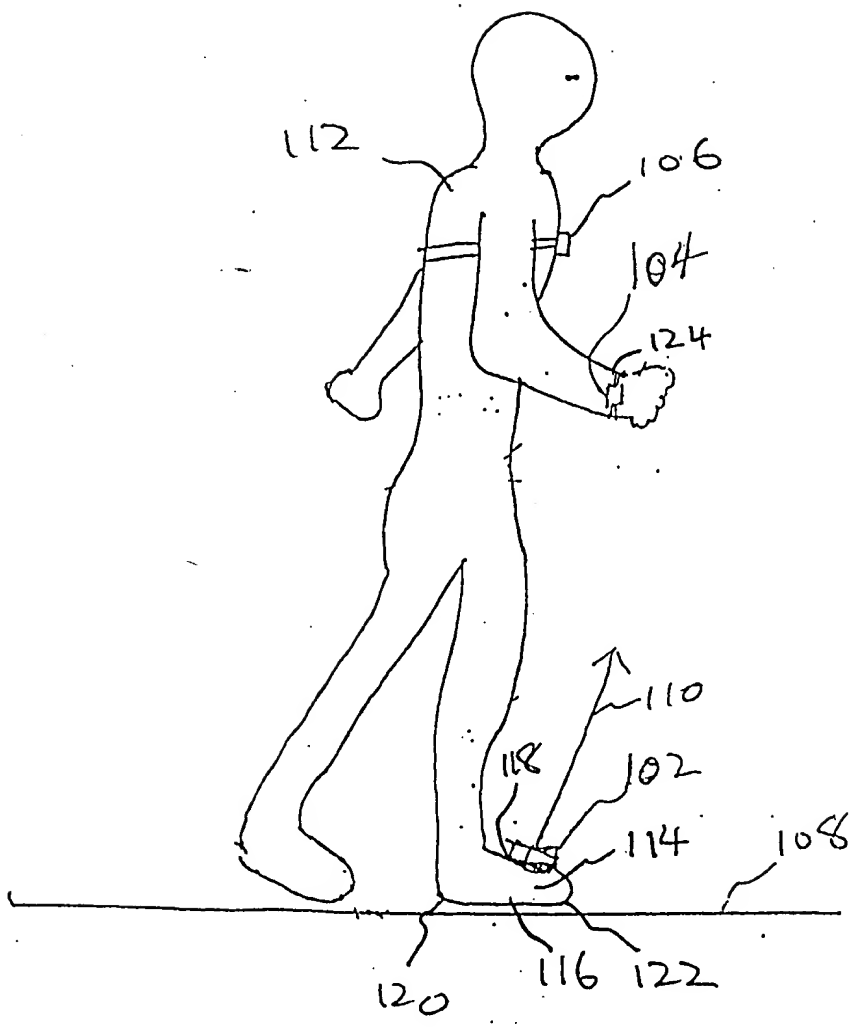


Fig. 1

09529-5354US

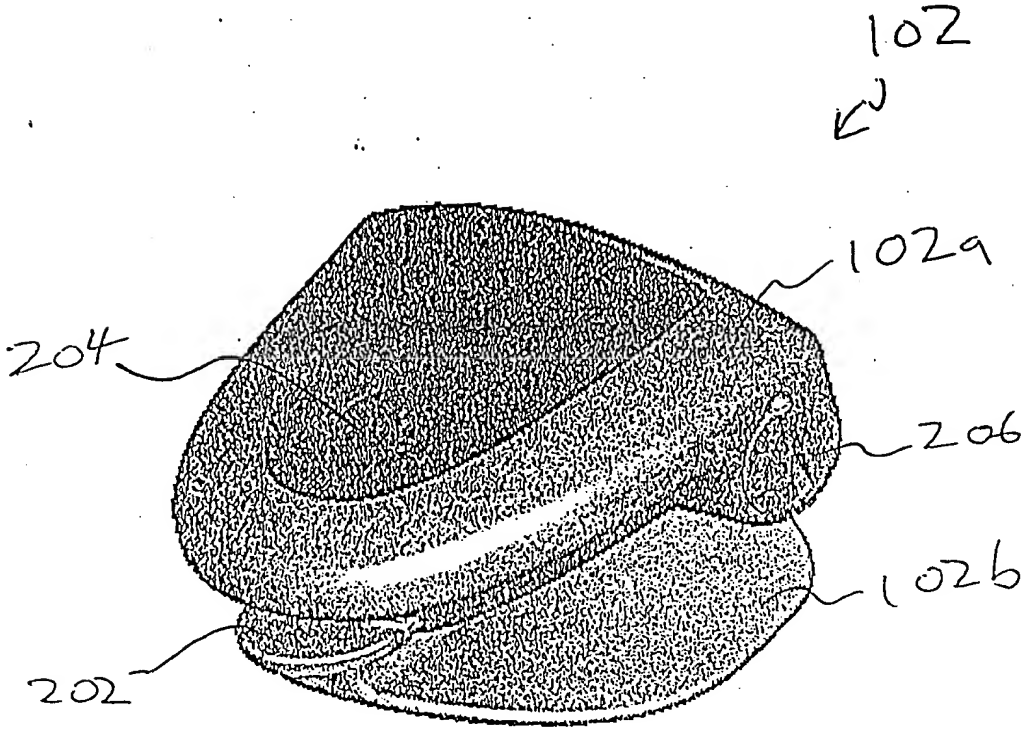


Fig. 2A

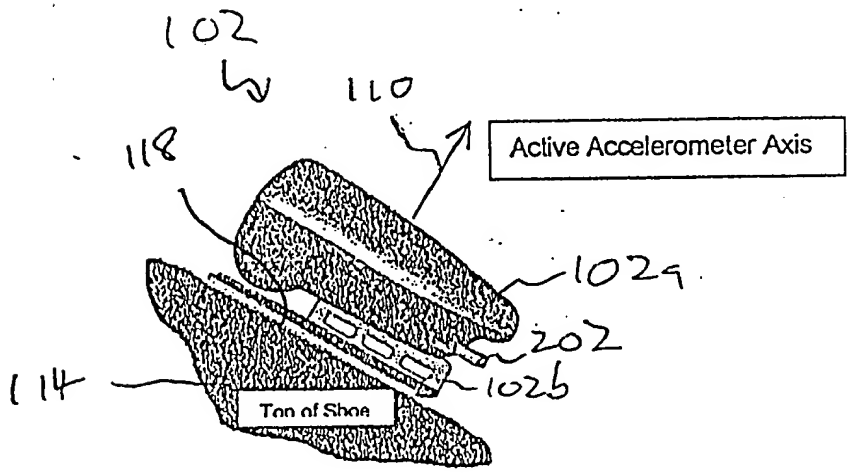


Fig. 2B

08736.8154.0

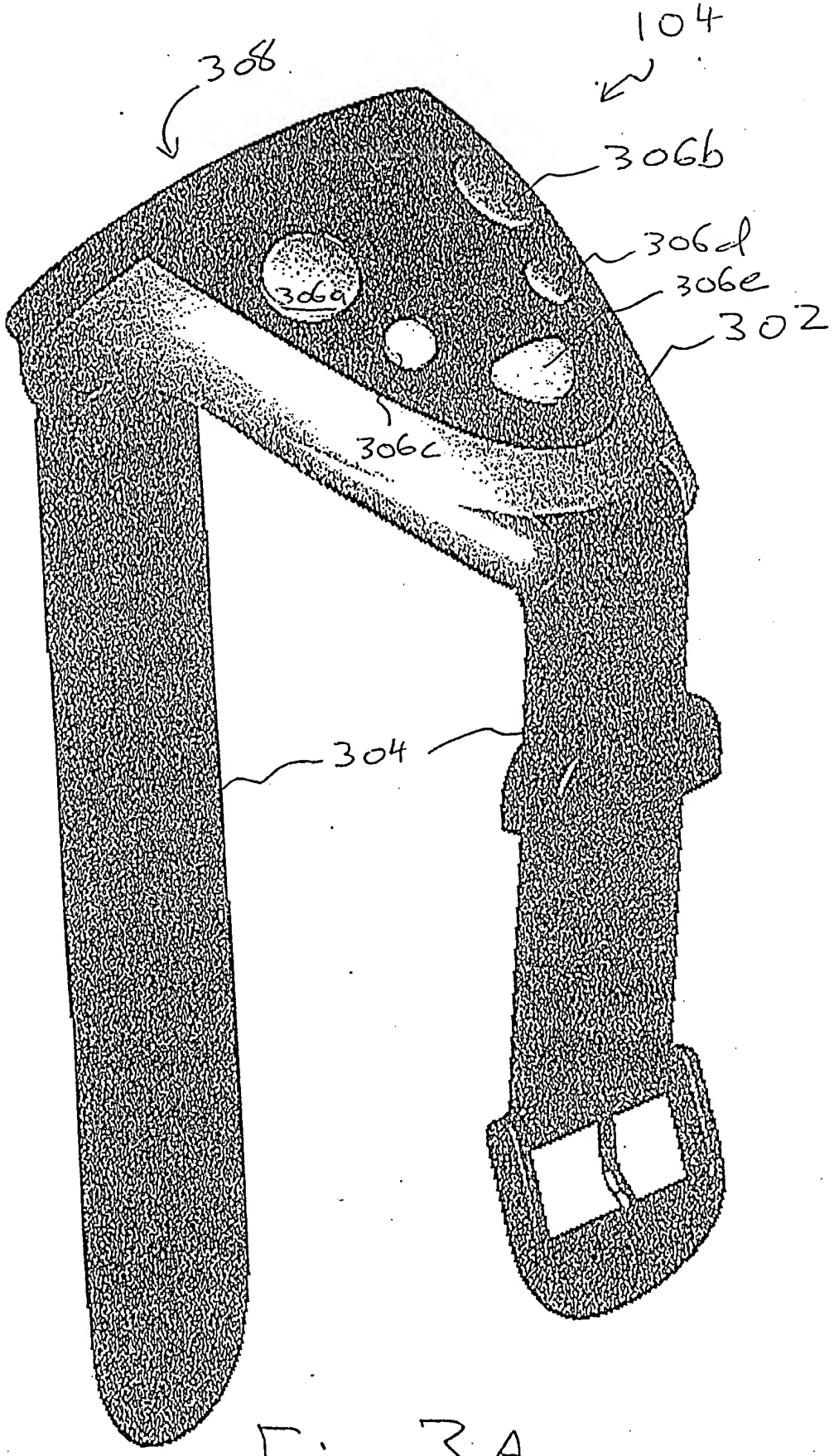


Fig. 3A

00T280"56TCh960

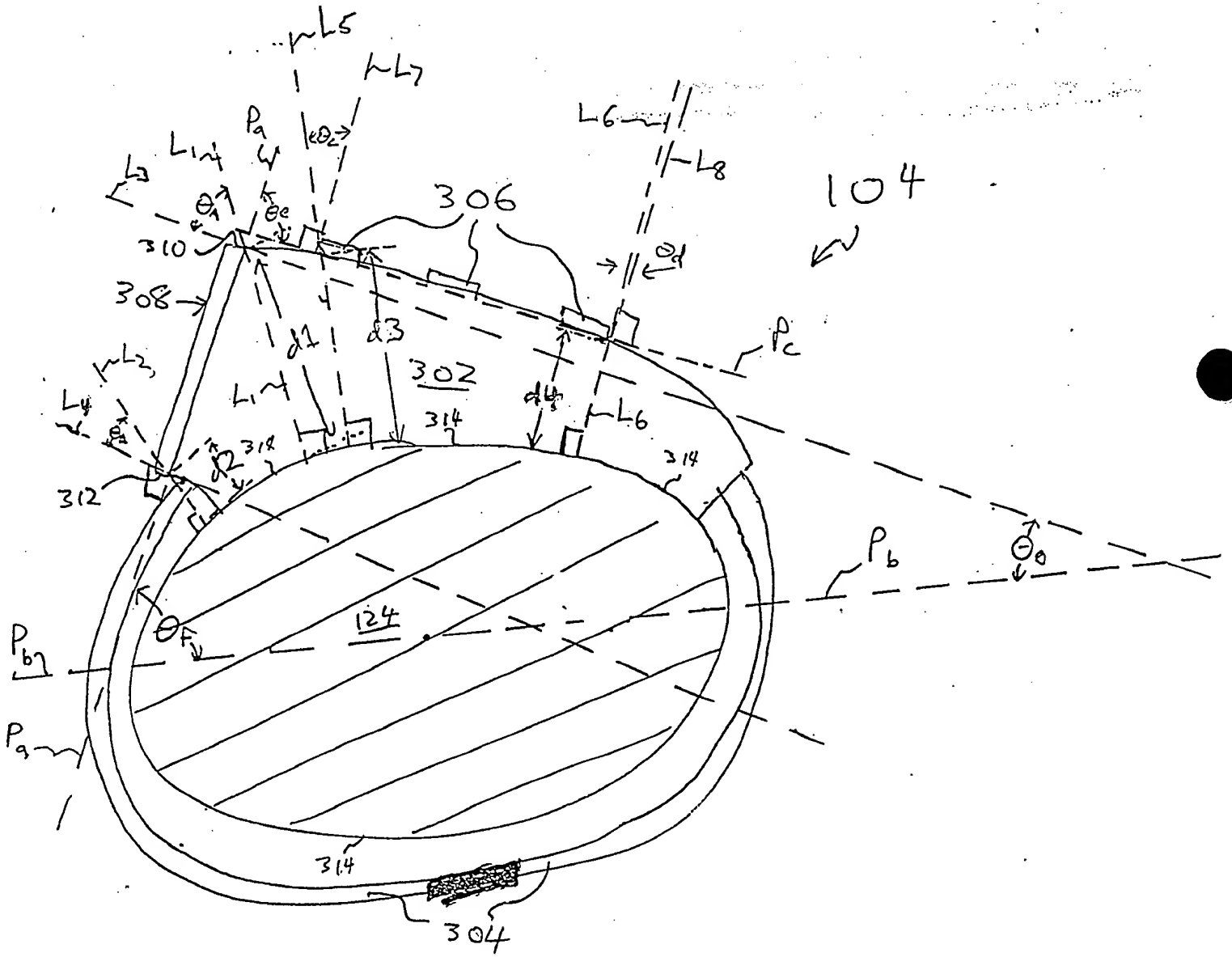


Fig. 3B

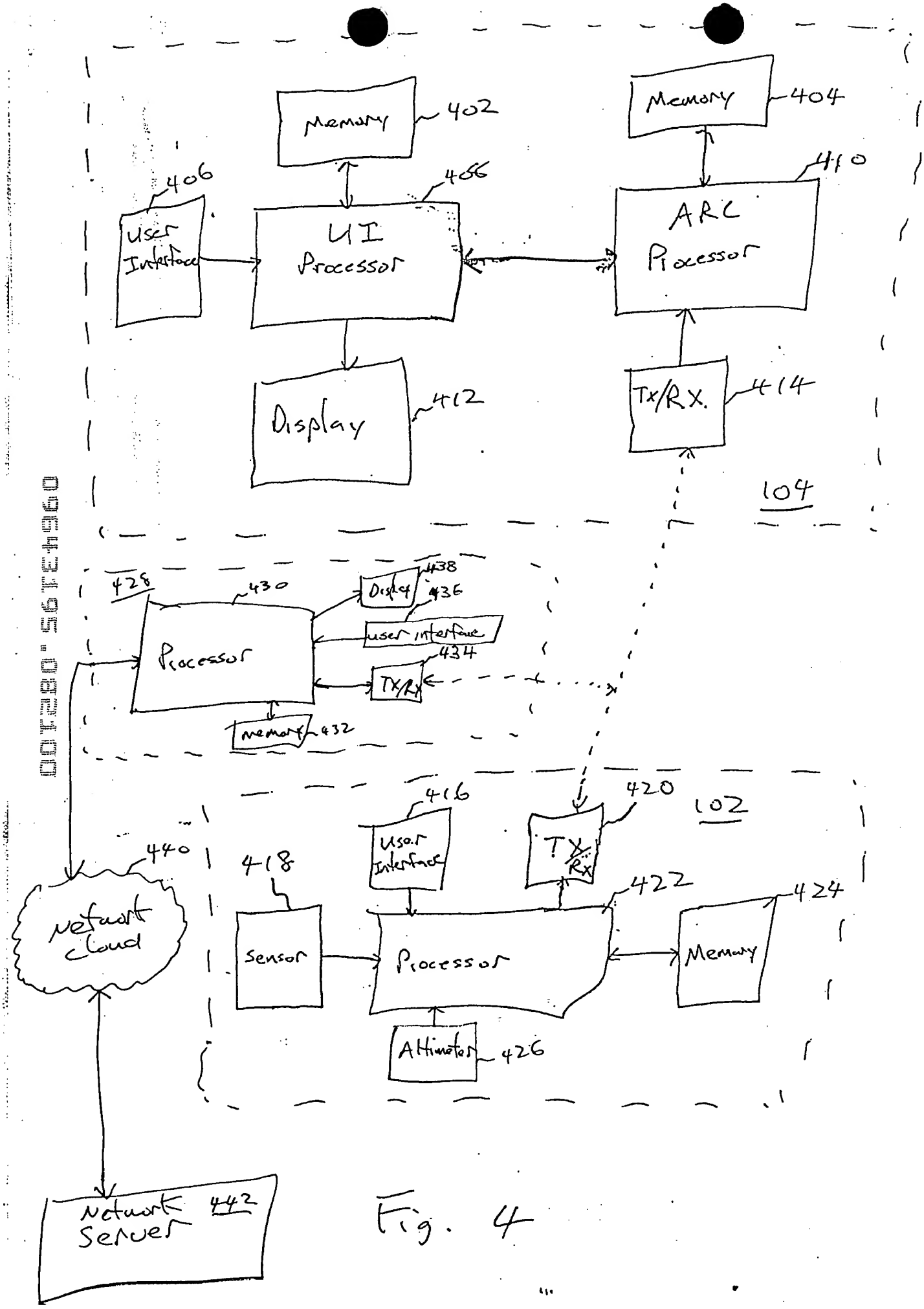

Memory
402
Memory
404
406
User Interface
UI Processor
408
ARC Processor
410
Display
412
Tx/Rx
414
104
428
430
Display
438
436
User interface
Processor
434
TX/RX
memory
432
416
User Interface
420
TX/RX
102
440
418
422
424
Network cloud
Sensor
Processor
Memory
Actuator
426
Network Server
442

Fig. 4

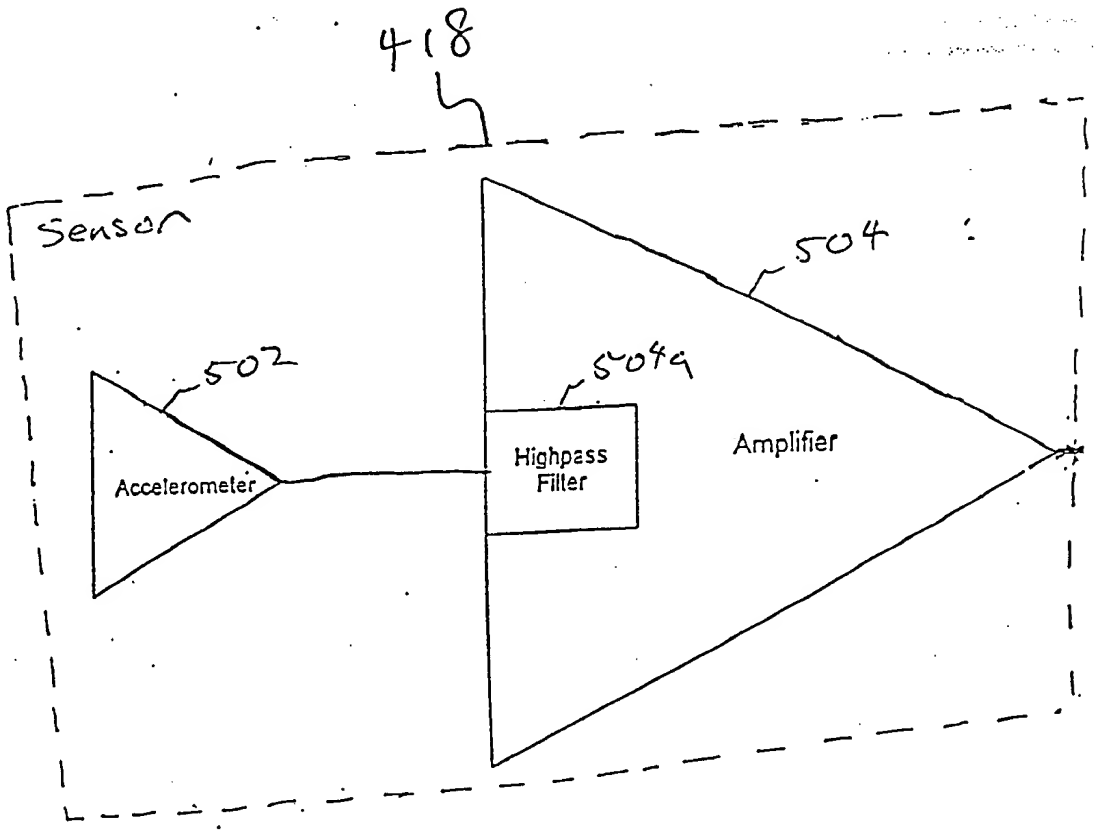

418
Sensor
502
Accelerometer
5049
Highpass Filter
504
Amplifier

Fig. 5

007280 "56TEh960

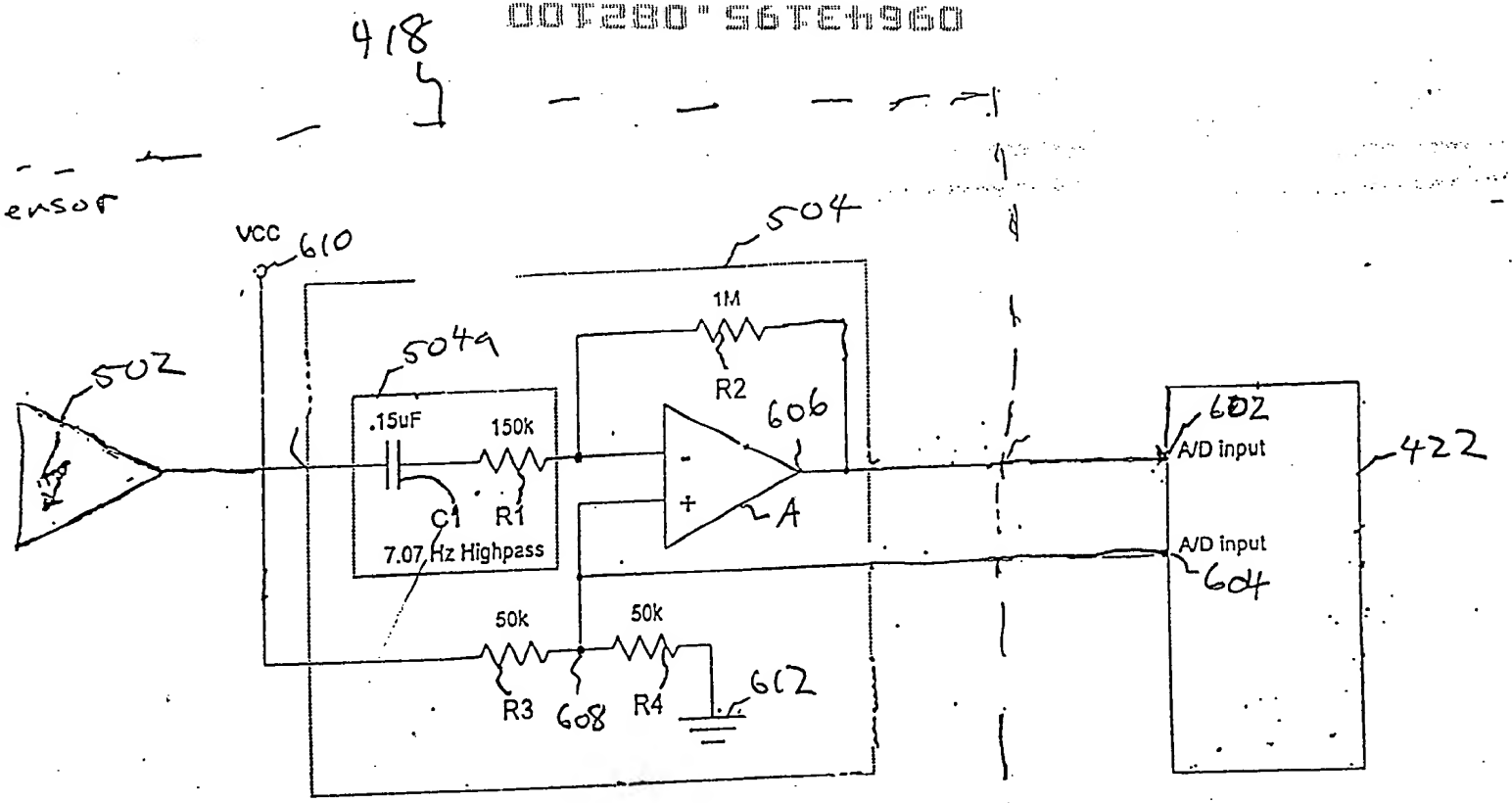


Fig. 6

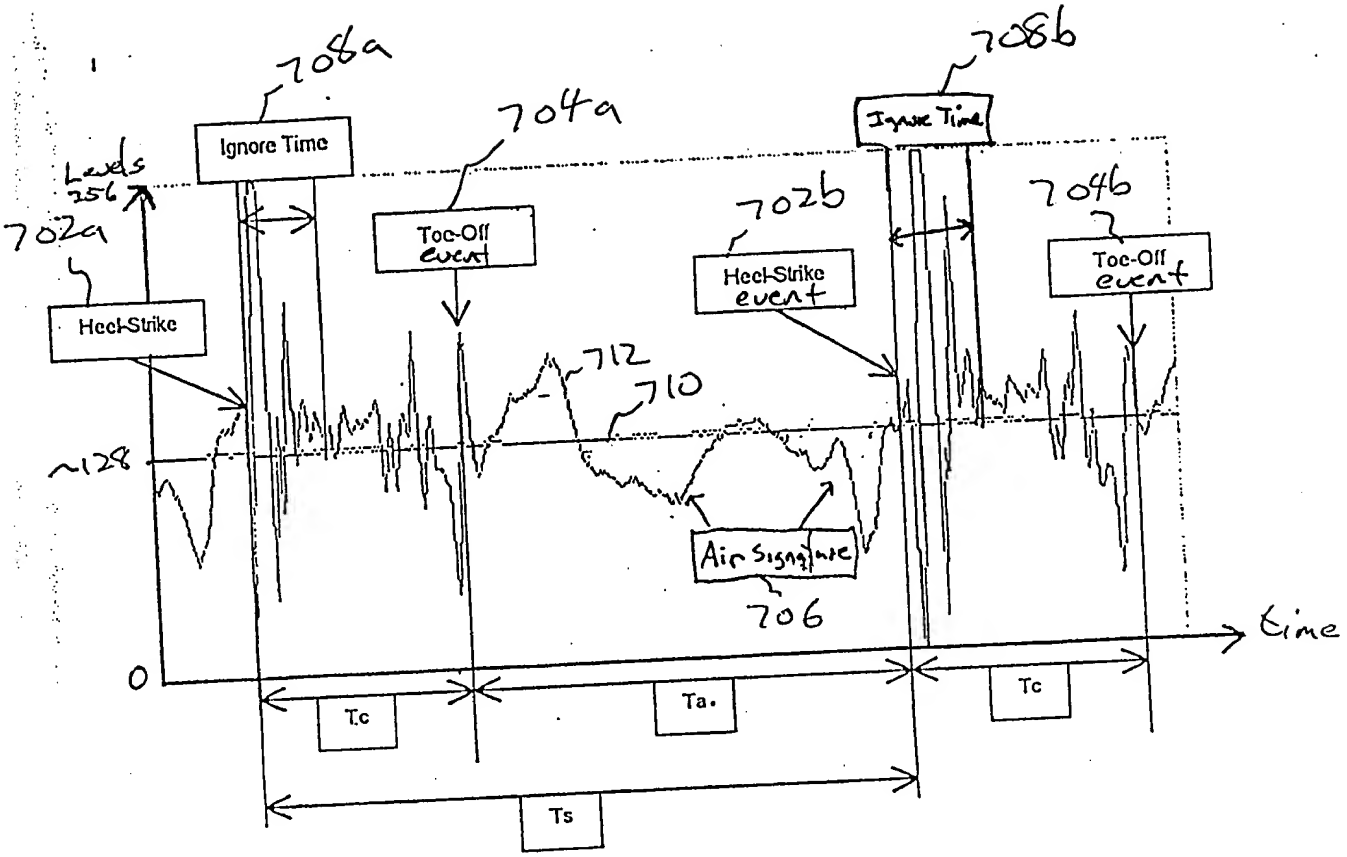

708a
704a
708b
Ignore Time
Ignore Time
Levels
256
702a
Toe-Off
event
702b
Heel-Strike
event
704b
Toe-Off
event
Heel-Strike
712
710
~128
Air Signature
706
Time
0
Tc
Ta
Tc
Ts

Fig. 7

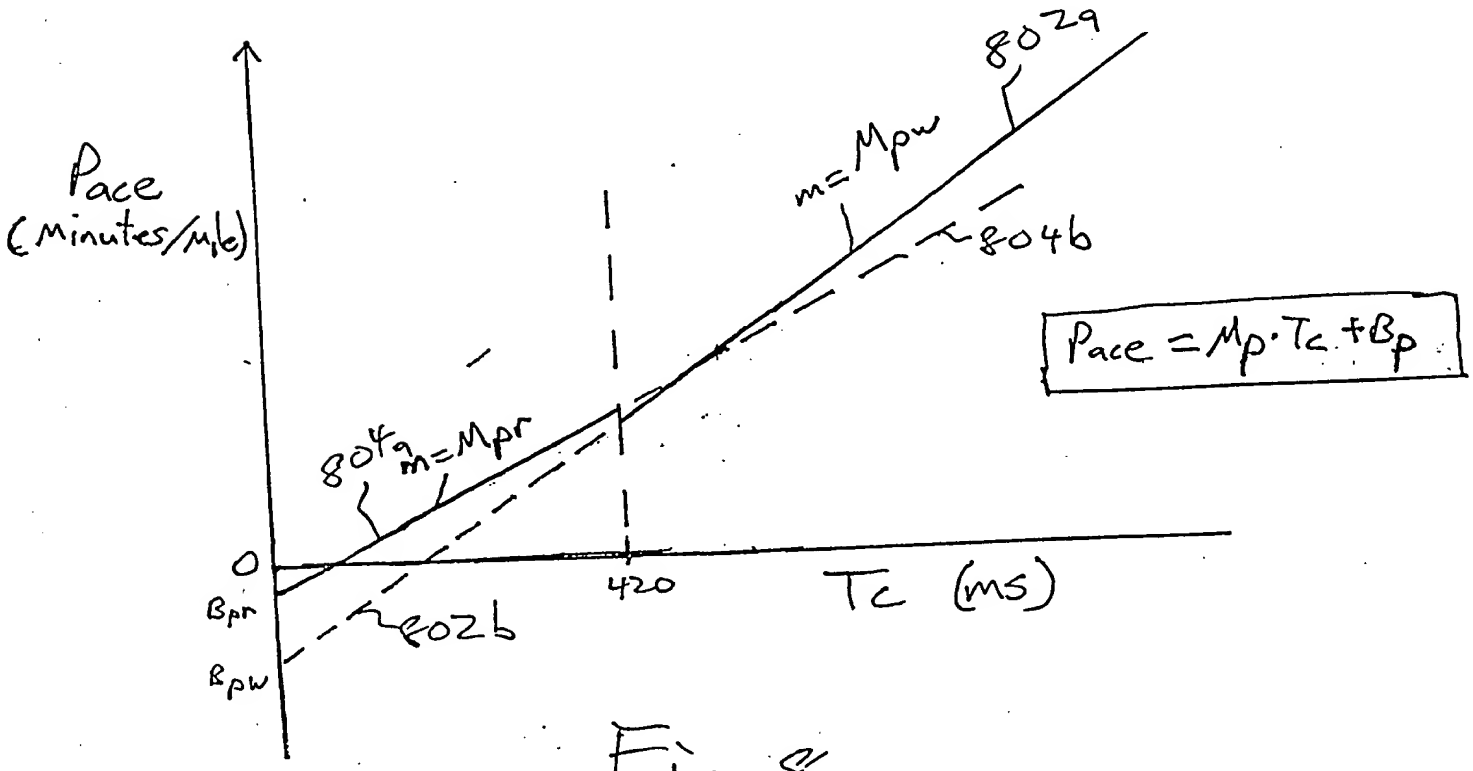

Pace
(Minutes/Mile)
802a
m=Mpw
802b
Pace = Mp·Tc + Bp
804a
m=Mpr
0
420
Tc (ms)
Bpr
802b
Bpw

Fig. 8

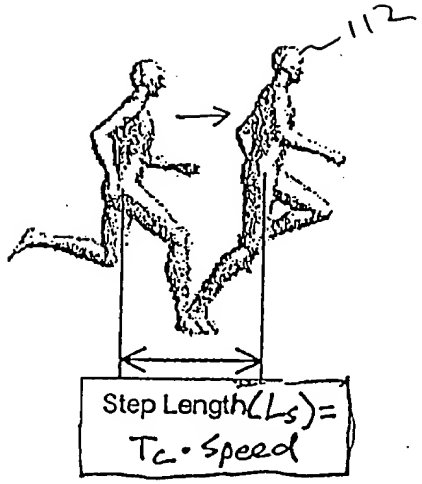

112
Step Length(L_S) =
T_C · Speed

Fig. 9

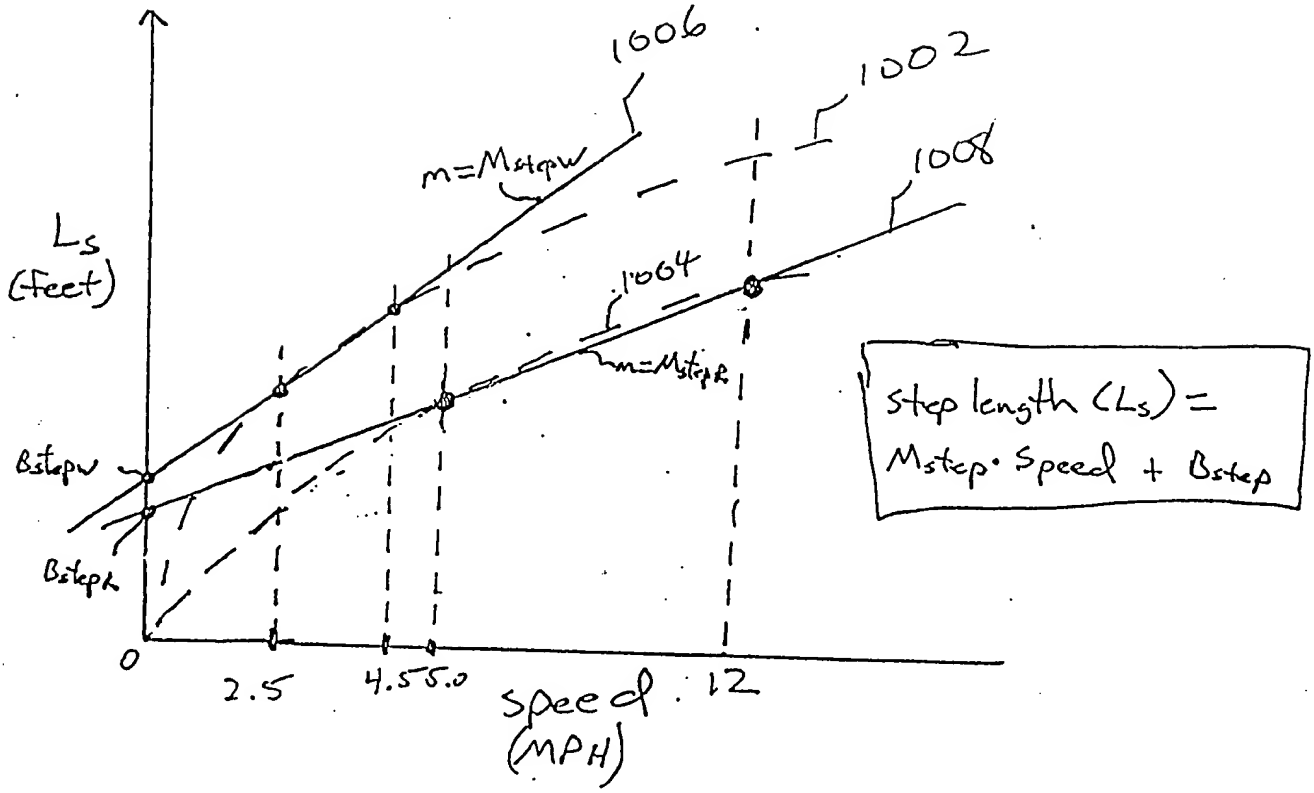

1006
1002
1008
1004
m=Mstepw
m=Mstepk
L_S
(feet)
Bstepw
Bstepk
0
2.5
4.5
5.0
12
speed
(MPH)
step length (L_S) =
Mstep · Speed + Bstep

Fig. 10

05454800

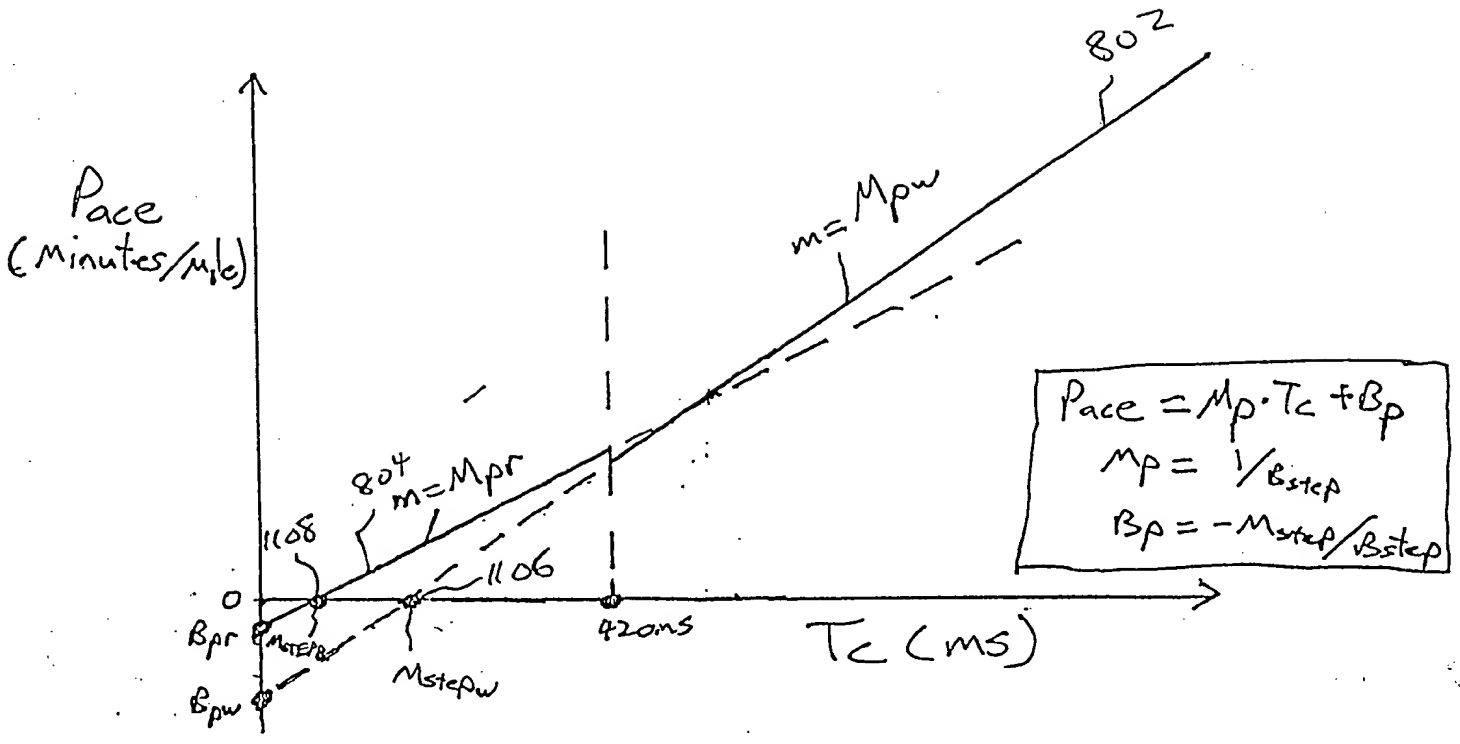


Fig. 11

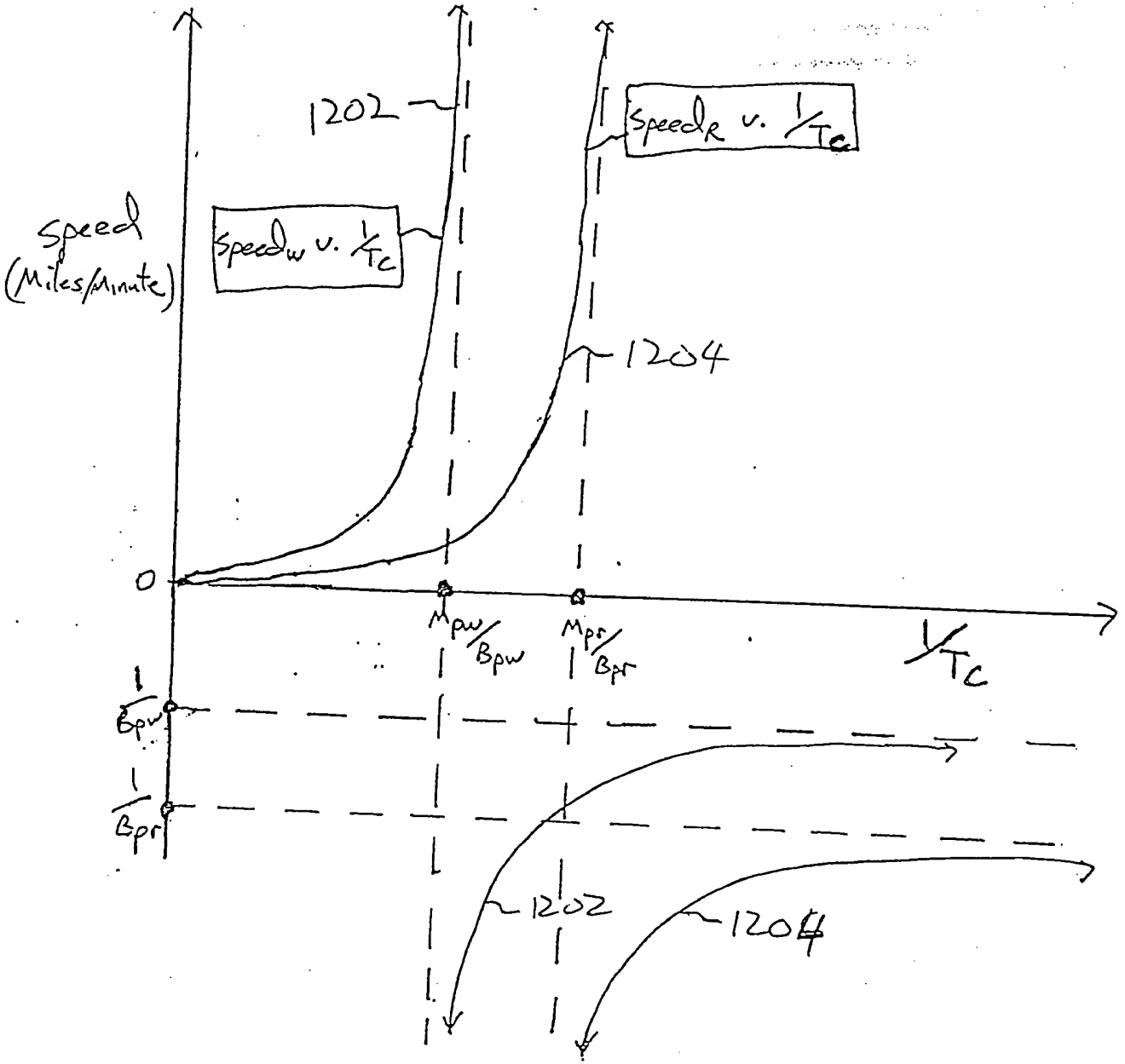

1202
Speed$_R$ v. $\frac{1}{T_C}$
Speed (Miles/Minute)
Speed$_W$ v. $\frac{1}{T_C}$
1204
0
M_{pw}/B_{pw}
M_{pr}/B_{pr}
$\frac{1}{T_C}$
$\frac{1}{B_{pw}}$
$\frac{1}{B_{pr}}$
1202
1204

Fig. 12

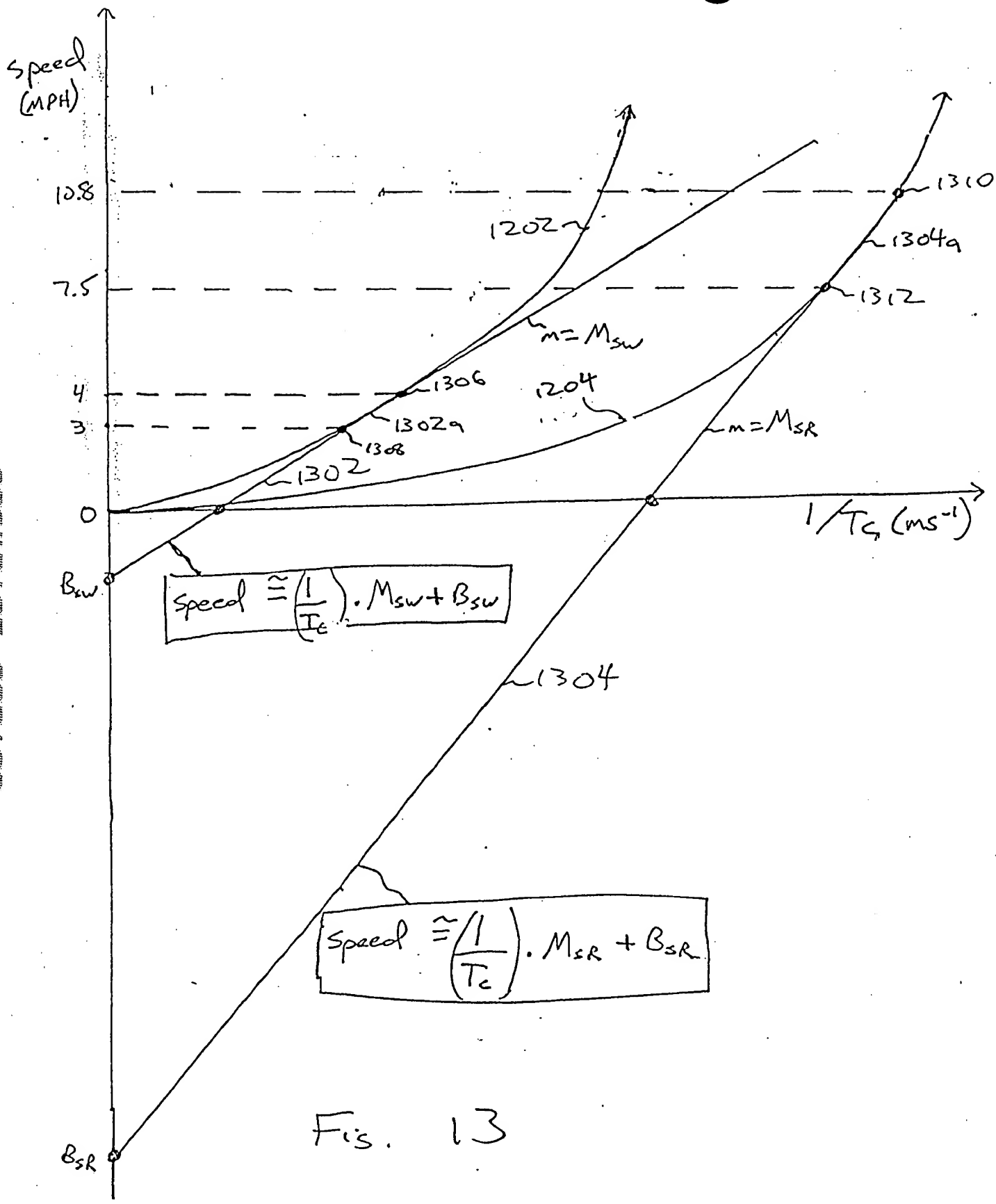

Speed (MPH)
10.8
7.5
4
3
0
1202
1310
1304a
1312
m = Msw
1306
1204
1302a
1308
1302
m = MsR
1/Tc (ms-1)
Bsw
Speed ≅ (1/Tc) · Msw + Bsw
1304
Speed ≅ (1/Tc) · MsR + BsR
BsR

Fig. 13

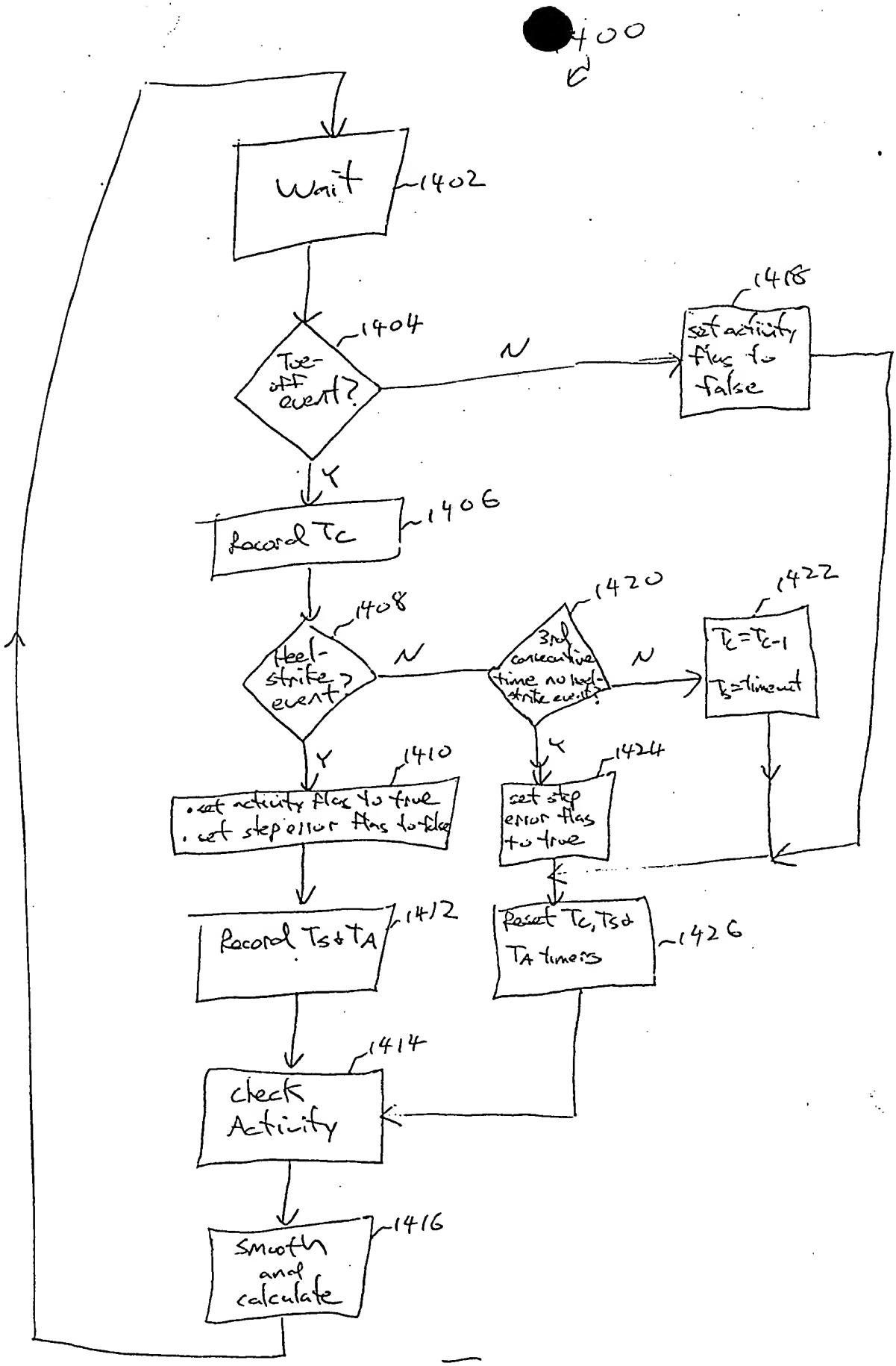

400
Wait
1402
Toe-off event?
1404
N
Y
set activity flag to false
1418
Record Tc
1406
Heel-strike event?
1408
N
Y
3rd consecutive time no heel-strike event?
1420
N
Y
Tc = Tc-1
Ts = timeout
1422
• set activity flag to true
• set step error flag to false
1410
set step error flag to true
1424
Record Ts & TA
1412
Reset Tc, Ts & TA timers
1426
check Activity
1414
smooth and calculate
1416

Fig. 14

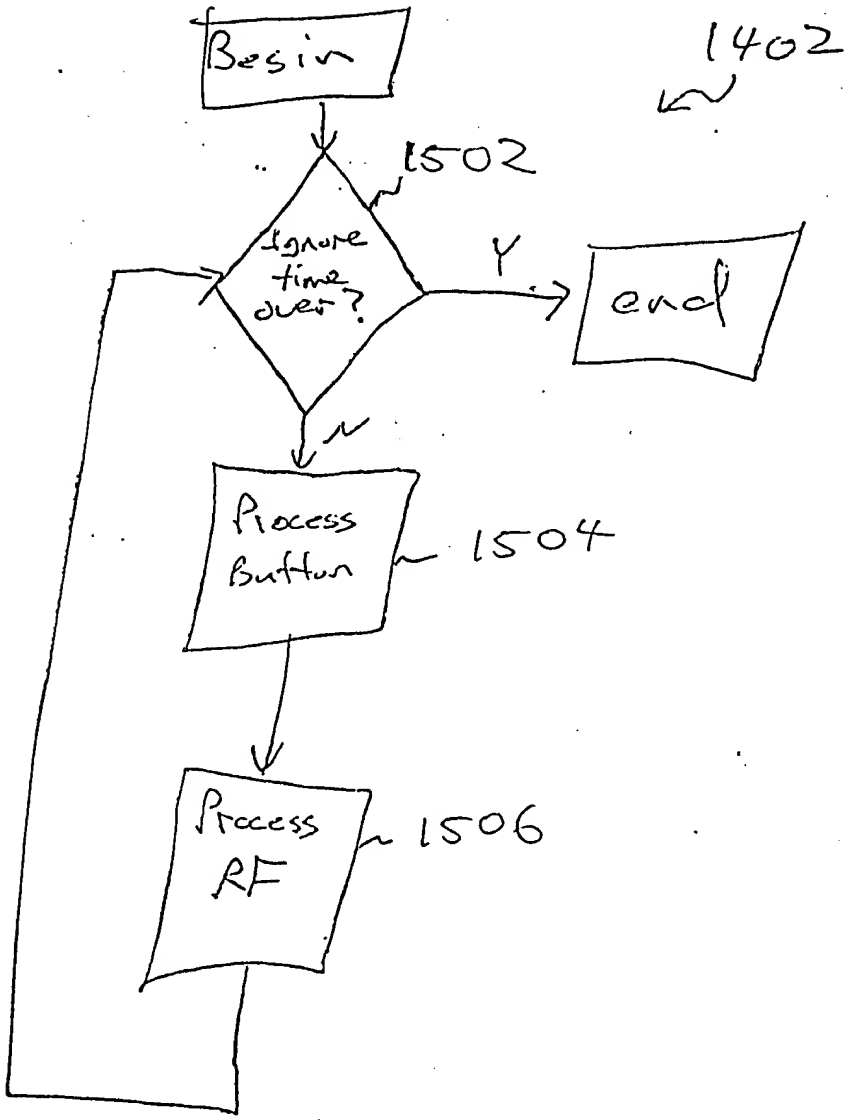

Begin
1402
1502
Ignore time over?
Y
end
N
Process Button
1504
Process RF
1506

Fig. 15

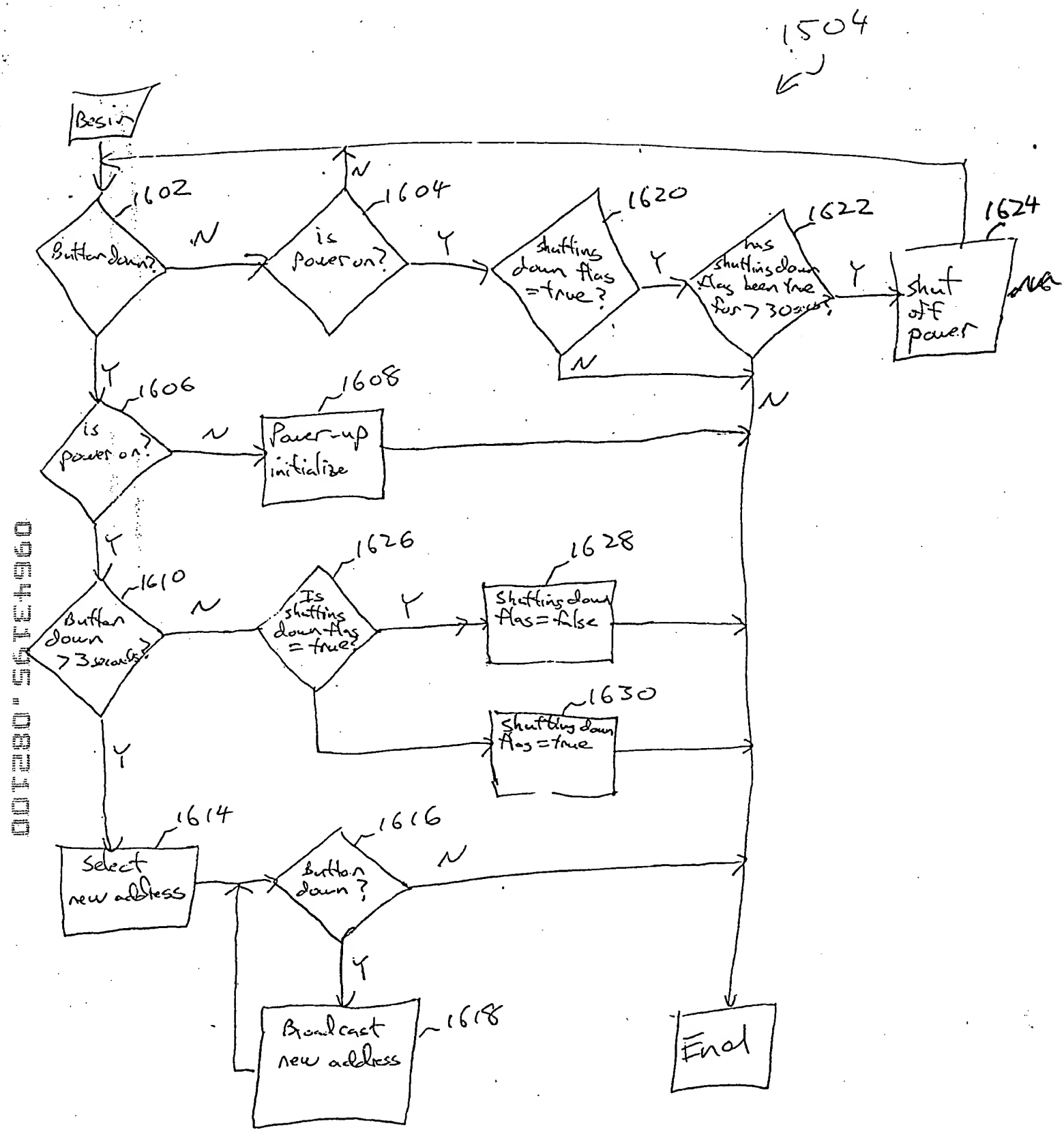

1504
Begin
1602
Button down?
N
1604
is power on?
Y
N
1620
shutting down flag = true?
Y
1622
has shutting down flag been true for > 30 sec?
Y
1624
shut off power
N
Y
1606
is power on?
N
1608
Power-up initialize
Y
1610
Button down > 3 seconds?
N
1626
Is shutting down flag = true?
Y
1628
Shutting down flag = false
1630
Shutting down flag = true
Y
1614
Select new address
1616
Button down?
N
Y
1618
Broadcast new address
End

Fig. 16

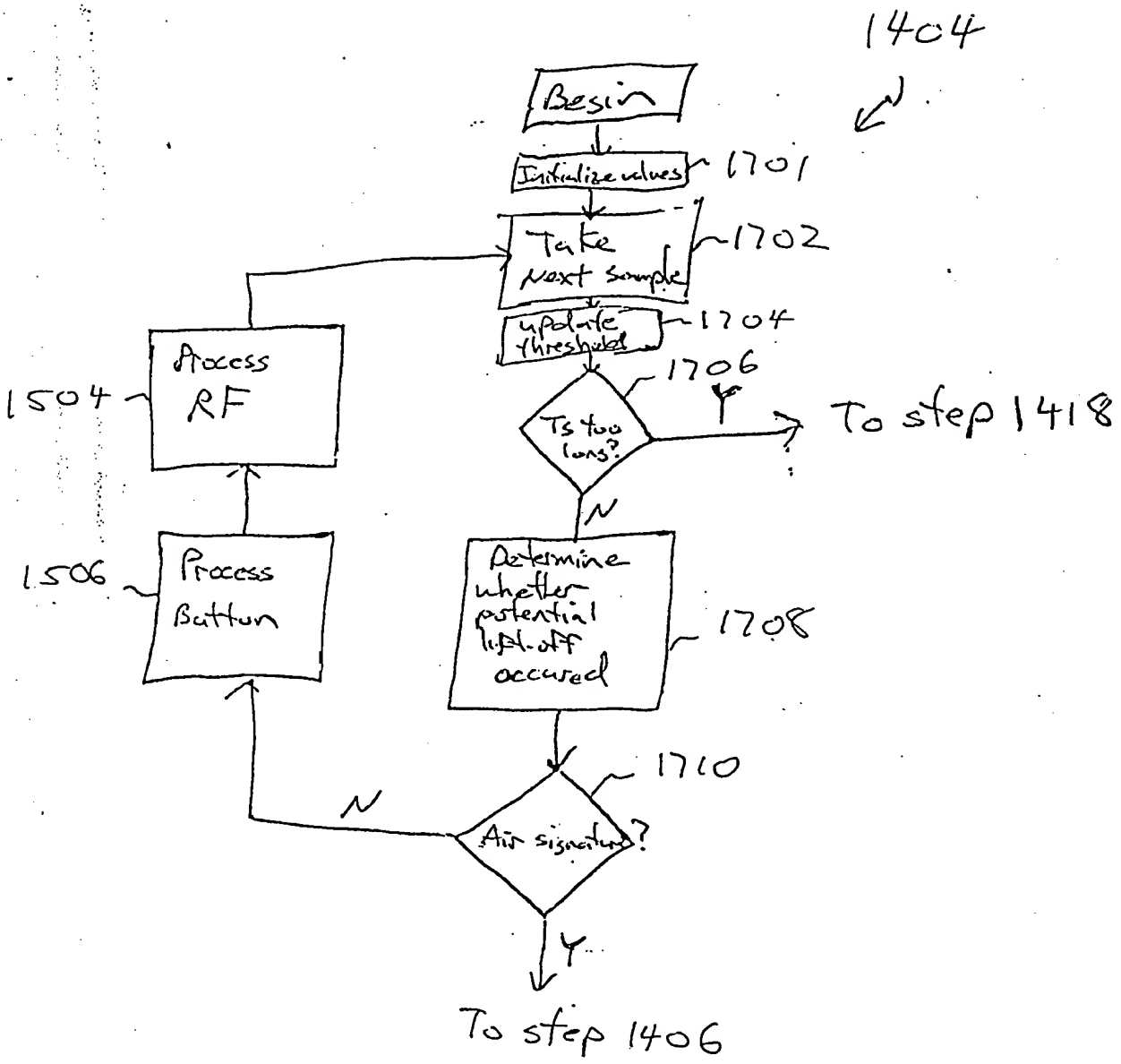

1404
Begin
Initialize values
1701
Take next sample
1702
Update thresholds
1704
Process RF
1504
Ts too long?
1706
To step 1418
Y
N
Process Button
1506
Determine whether potential lift-off occured
1708
1710
N
Air signature?
Y
To step 1406

Fig. 17

0056250-0056250

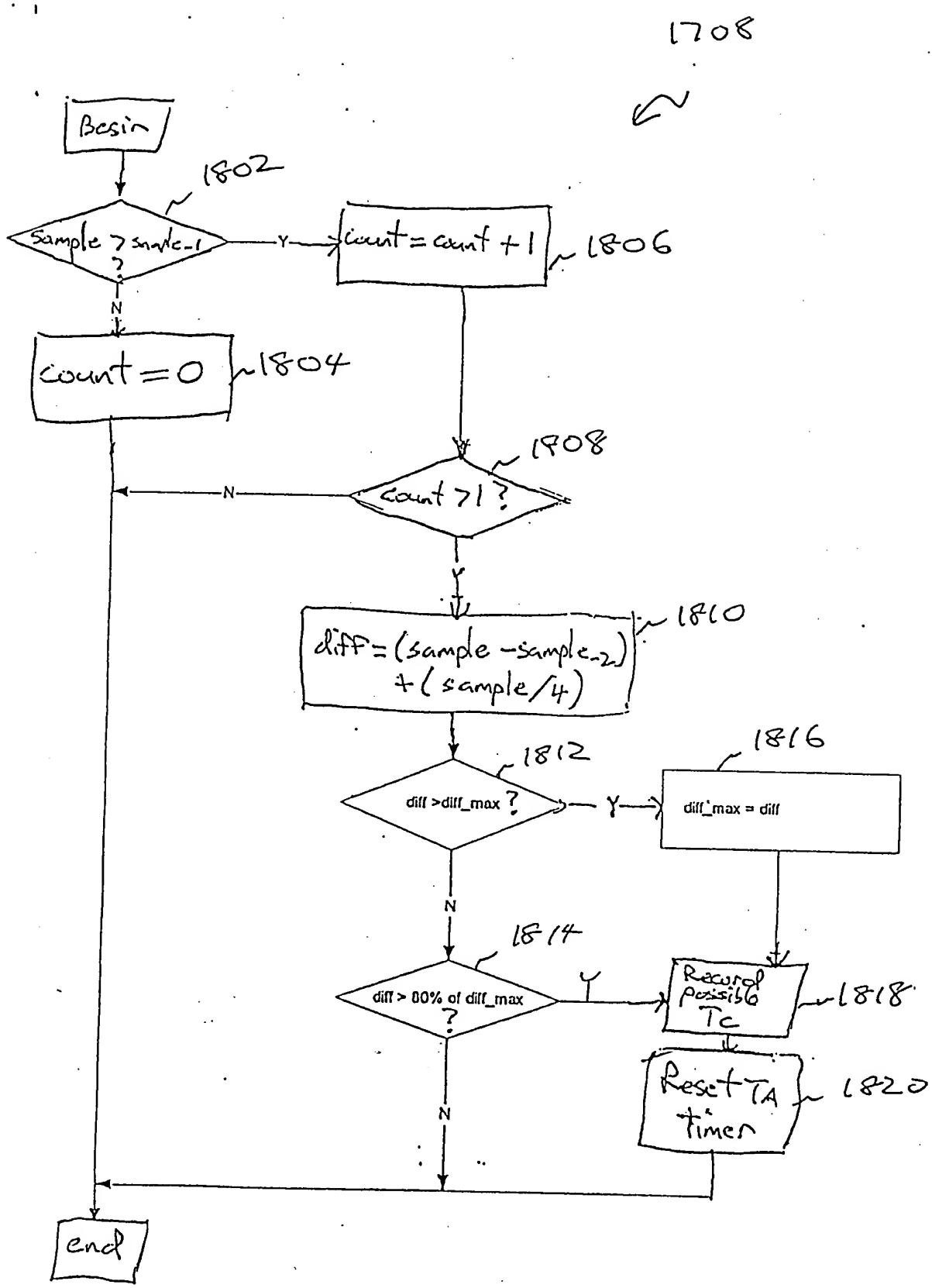


Fig. 18

0075280-351+950

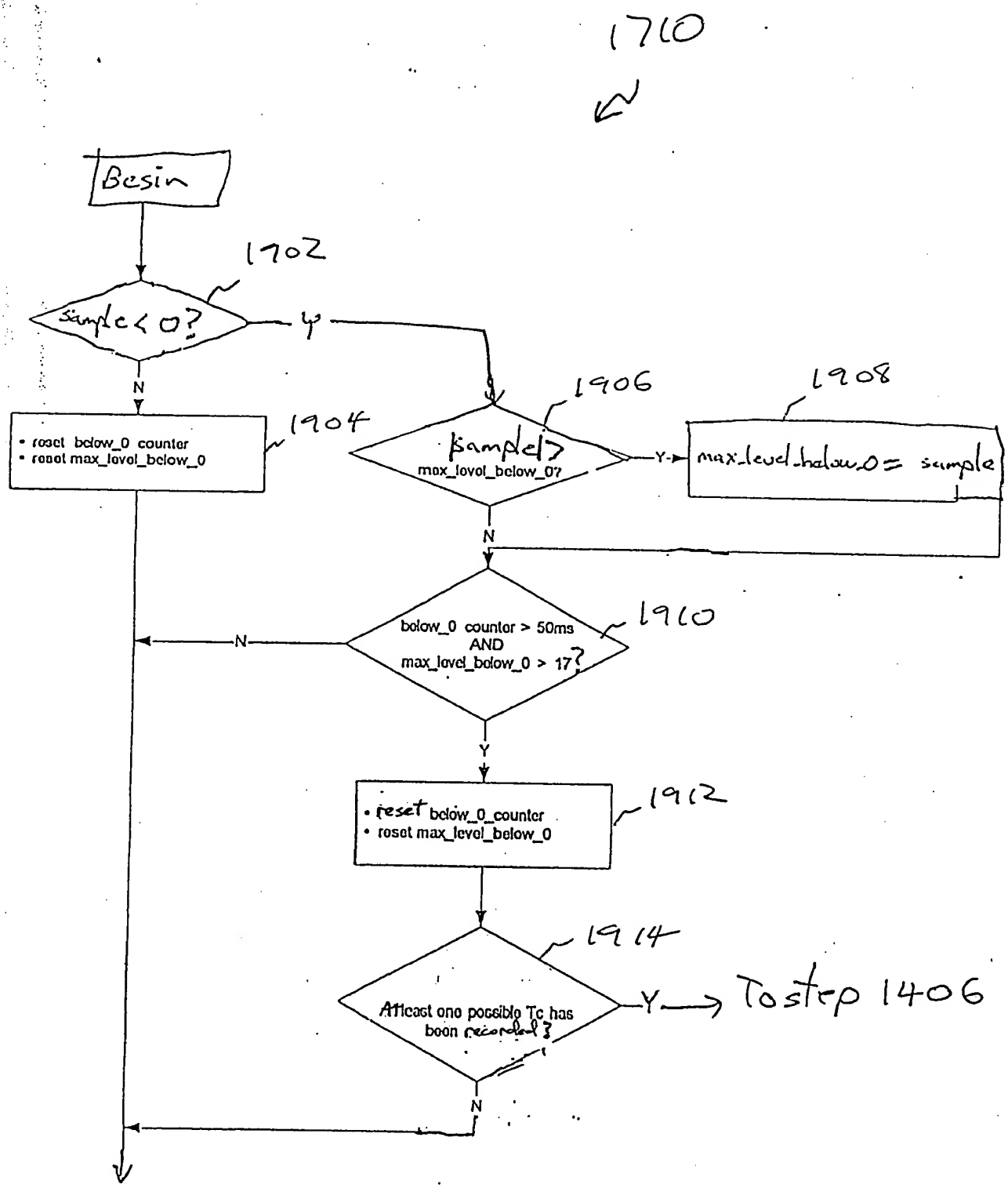


Fig. 19

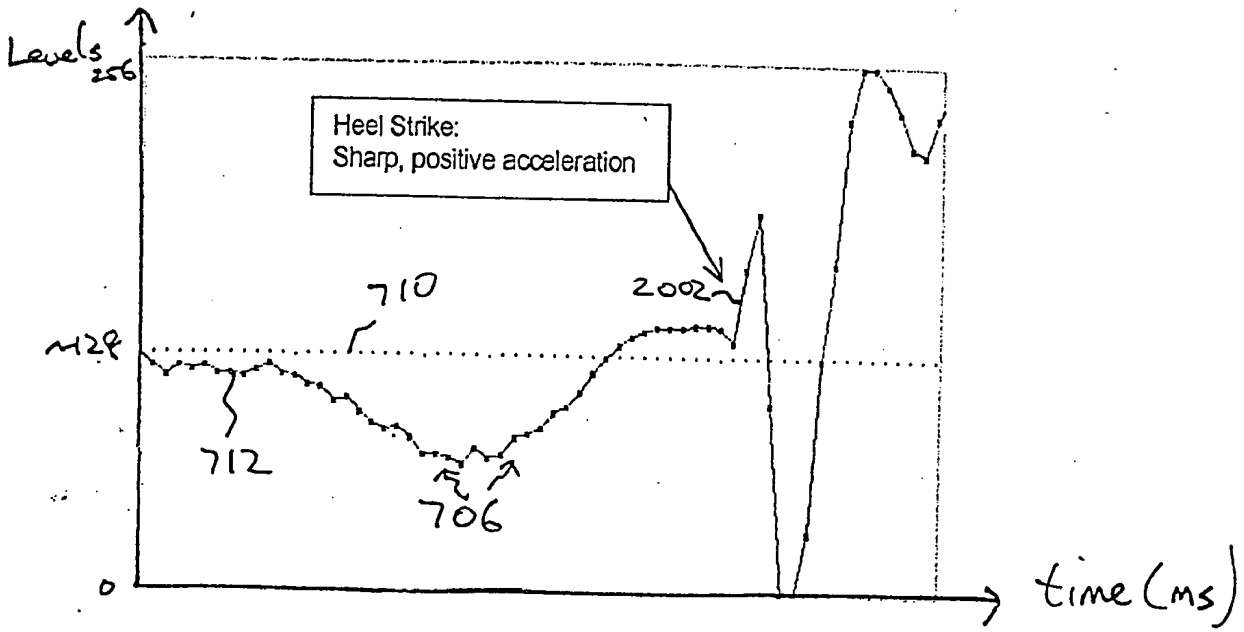

Levels
256
Heel Strike:
Sharp, positive acceleration
710
2002
128
712
706
0
time (ms)

Fig. 20

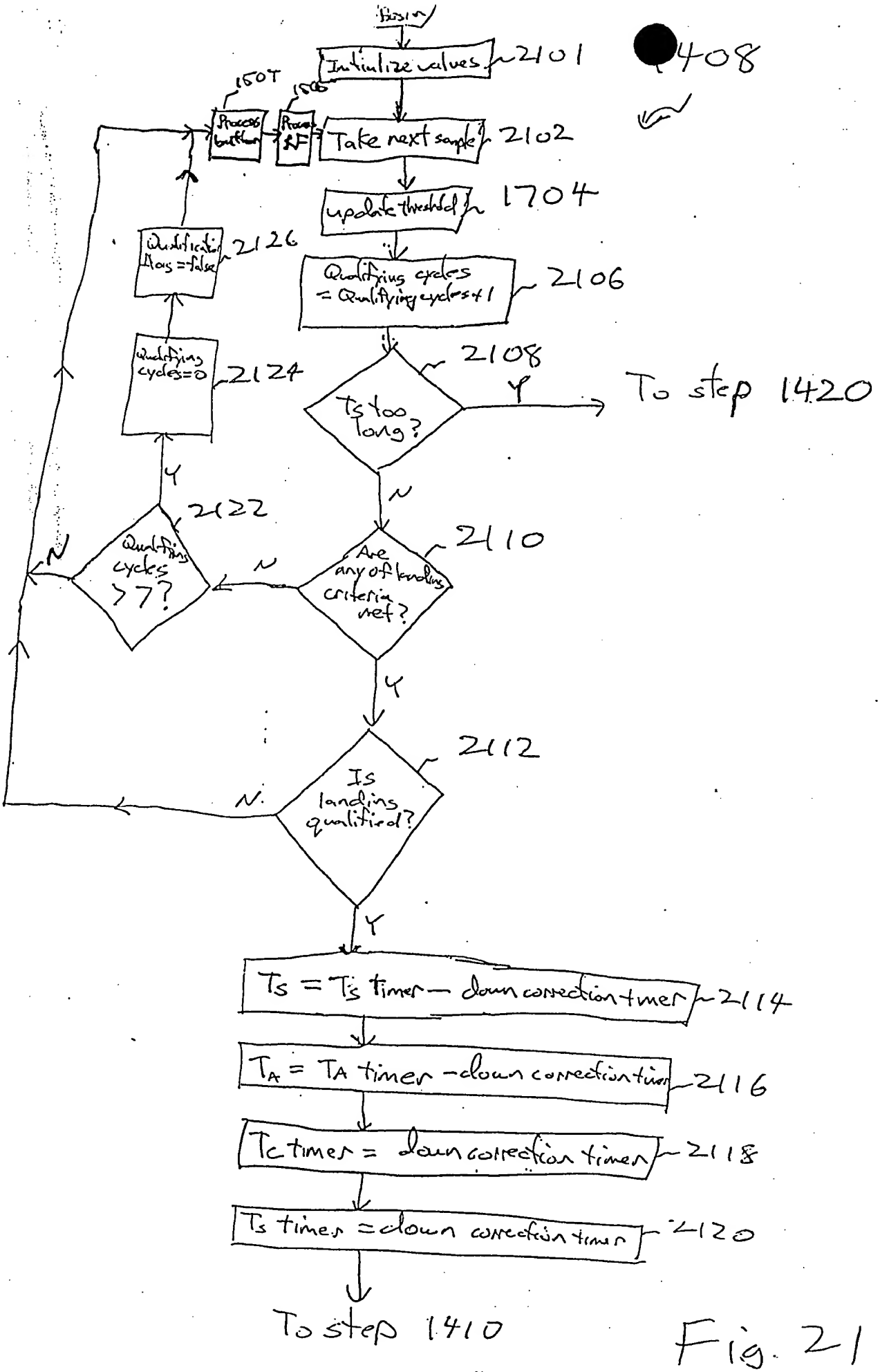

Begin
Initialize values
2101
1408
150T
150S
Process buffer
Process RF
Take next sample
2102
update threshold
1704
Qualification flags = false
2126
Qualifying cycles = Qualifying cycles + 1
2106
Qualifying cycles = 0
2124
2108
Ts too long?
Y
To step 1420
N
2122
Qualifying cycles > 7?
N
2110
Are any of landing criteria met?
Y
N
2112
Is landing qualified?
N
Y
Ts = Ts timer — down correction timer
2114
TA = TA timer - down correction timer
2116
Tc timer = down correction timer
2118
Ts timer = down correction timer
2120
To step 1410

Fig. 21

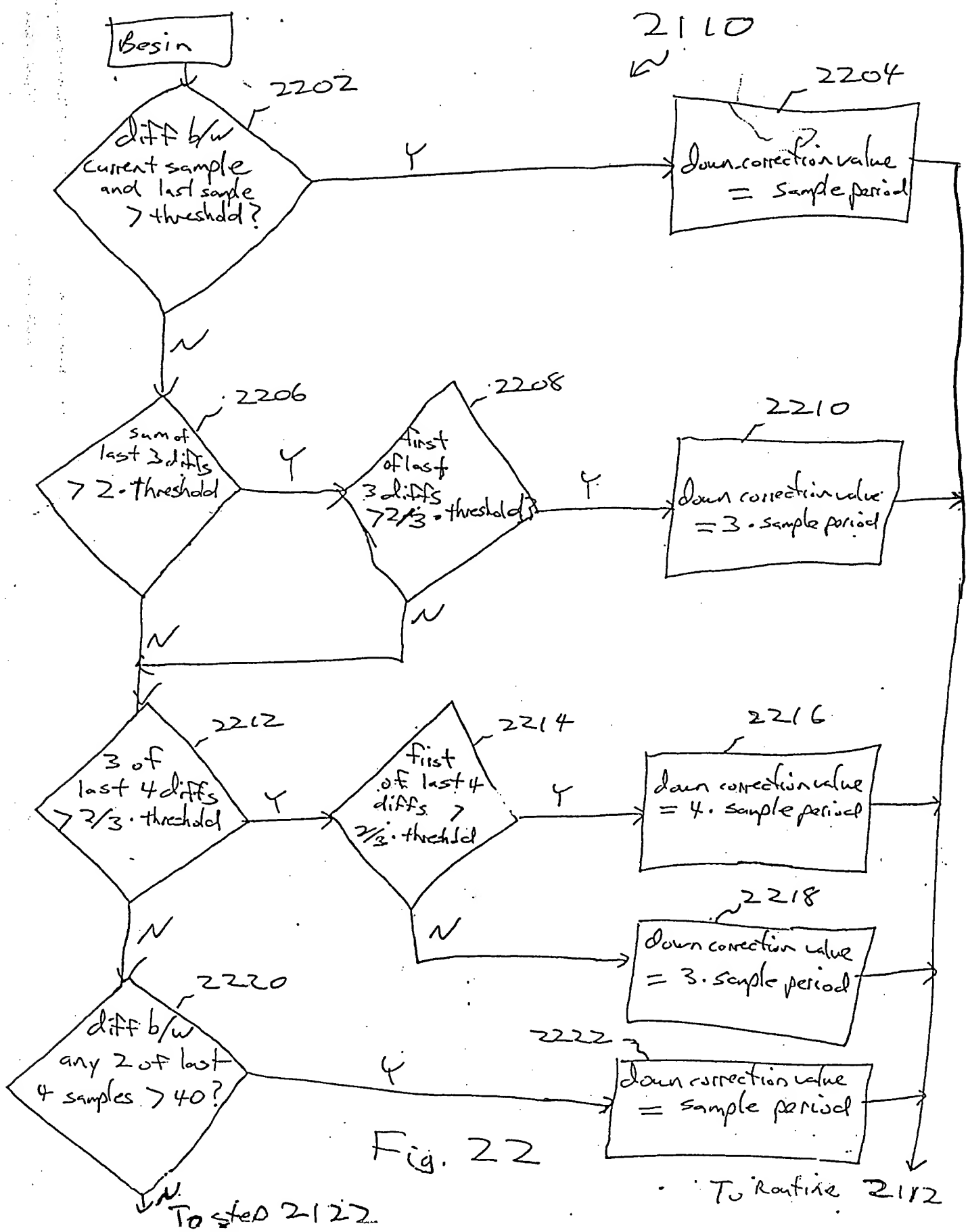

2110
Begin
2202
diff b/w current sample and last sample > threshold?
Y
2204
down_correction value = sample period
N
2206
sum of last 3 diffs > 2 · threshold
Y
2208
first of last 3 diffs > 2/3 · threshold
Y
2210
down correction value = 3 · sample period
N
N
2212
3 of last 4 diffs > 2/3 · threshold
Y
2214
first of last 4 diffs > 2/3 · threshold
Y
2216
down correction value = 4 · sample period
N
2218
down correction value = 3 · sample period
N
2220
diff b/w any 2 of last 4 samples > 40?
Y
2222
down correction value = sample period
N
To step 2122
To Routine 2112

Fig. 22

08/28/2000 15:52:50

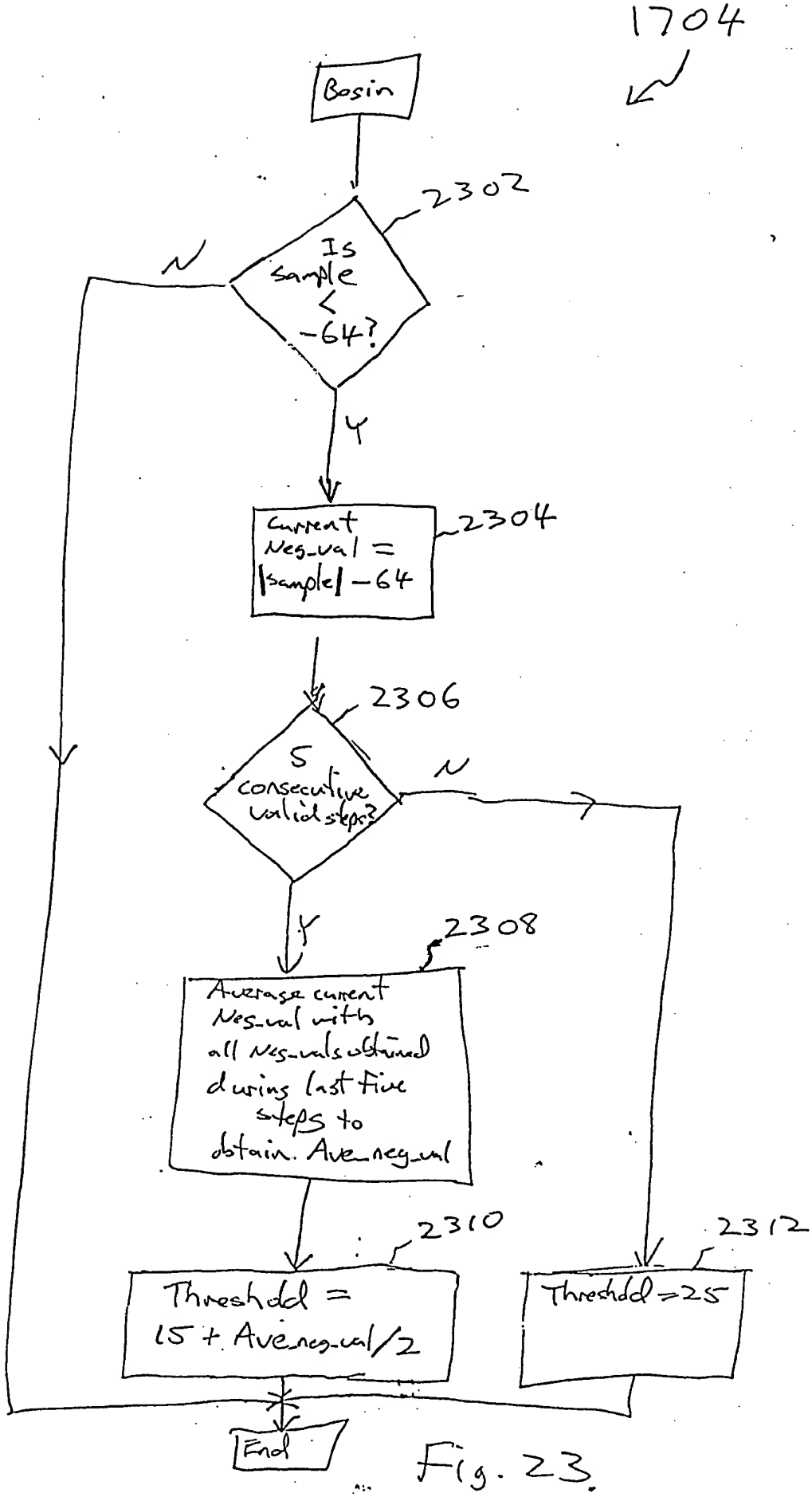


Fig. 23.

08/28/2003, 5:25:36 PM

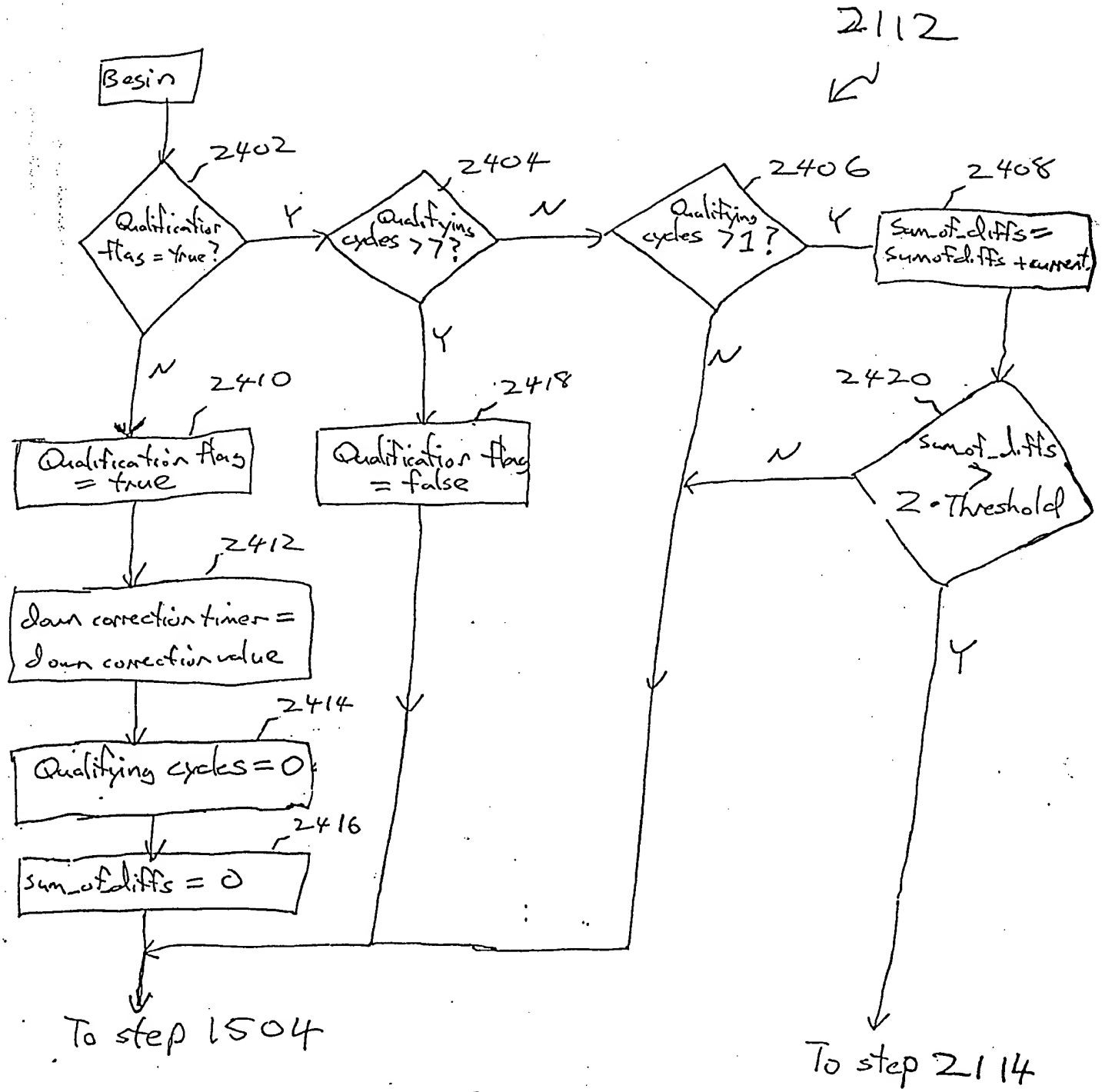


Fig. 24

DOCKET NO. 2005-0218.00

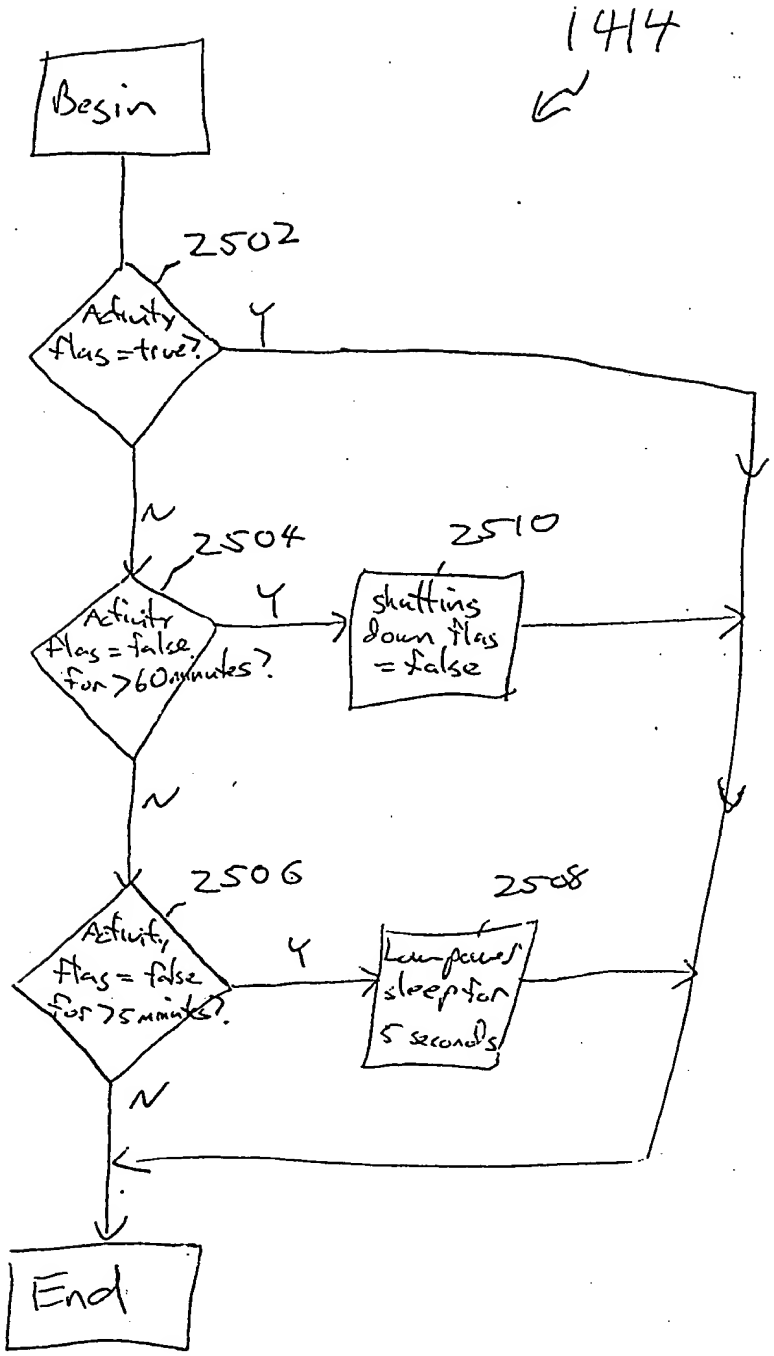


Fig. 25

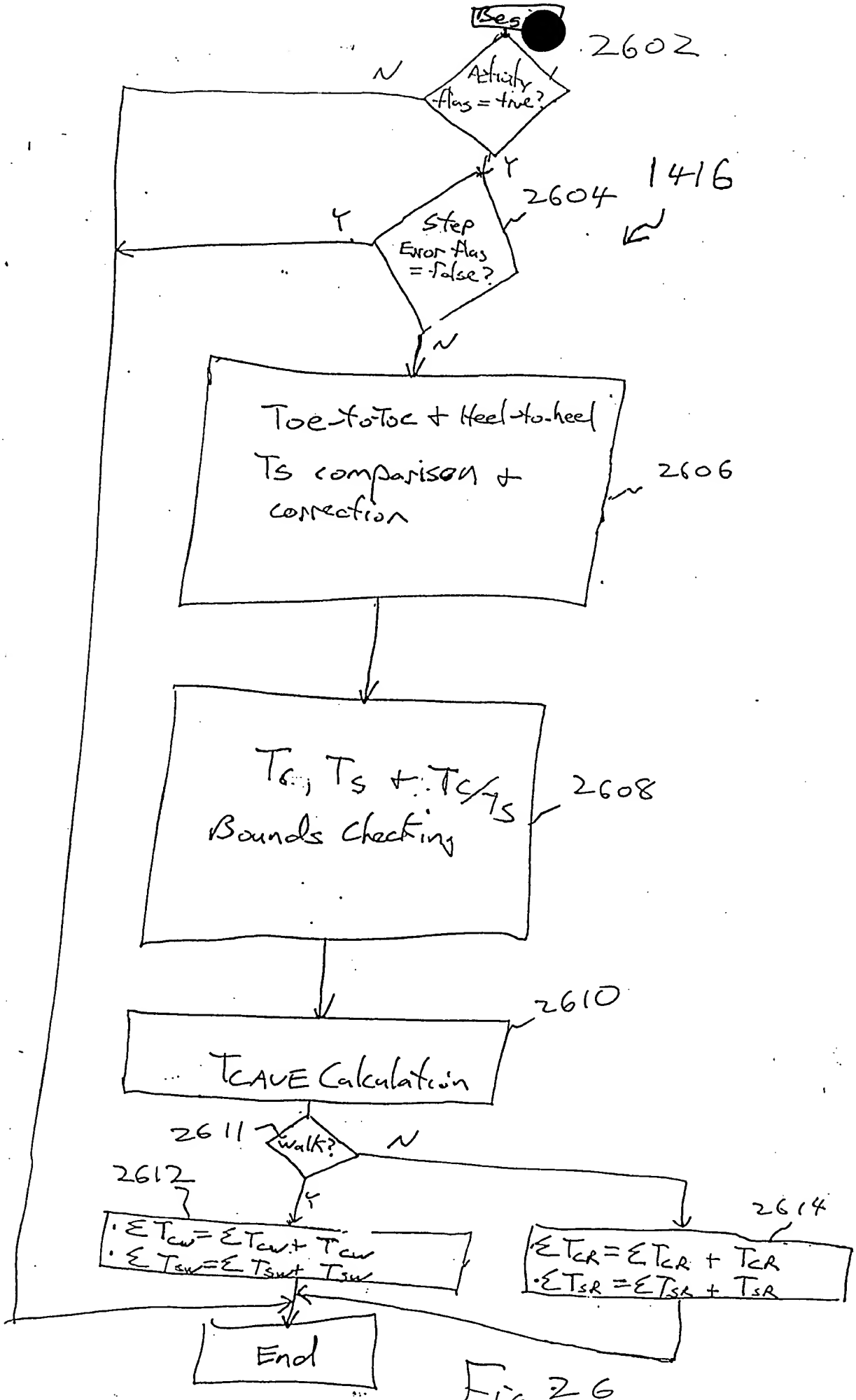

Begin
2602
Activity flag = true?
N
Y
2604
1416
Step Error flag = false?
Y
N
Toe-to-Toe + Heel-to-heel Ts comparison + correction
2606
Tc, Ts +: Tc/Ts Bounds Checking
2608
2610
TCAVE Calculation
2611
walk?
N
Y
2612
· ΣTcw = ΣTcw + Tcw
· ΣTsw = ΣTsw + Tsw
2614
· ΣTcR = ΣTcR + TcR
· ΣTsR = ΣTsR + TsR
End

Fig. 26

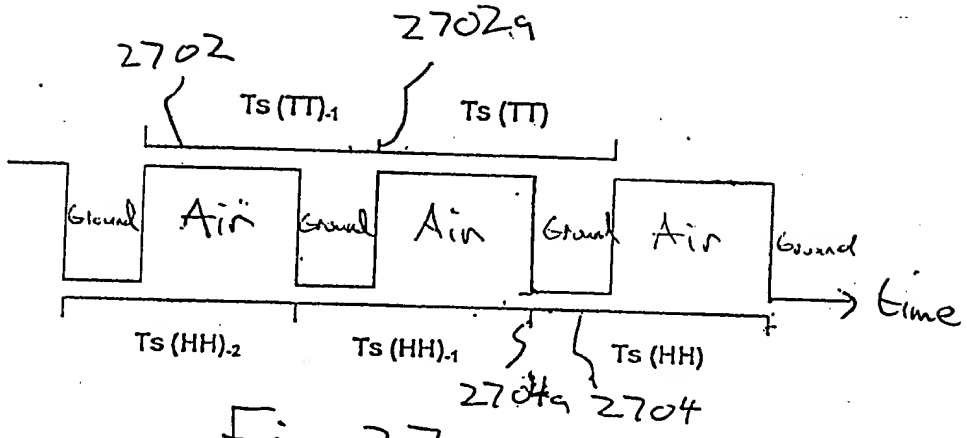

2702
2702a
Ts (TT)-1
Ts (TT)
Ground
Air
Ground
Air
Ground
Air
Ground
Time
Ts (HH)-2
Ts (HH)-1
Ts (HH)
2702a
2704

Fig. 27

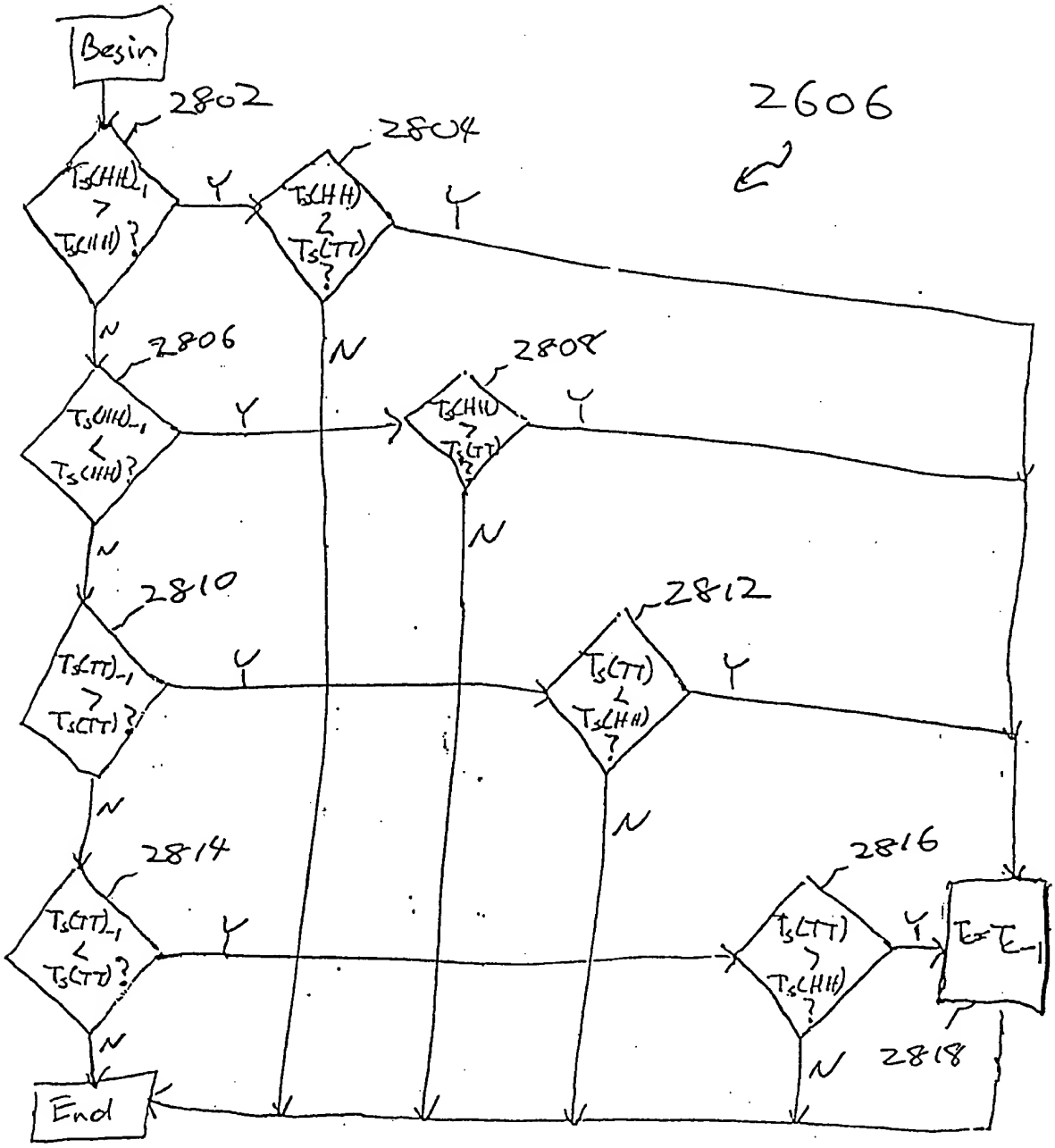

Begin
2606
2802
2804
2806
2808
2810
2812
2814
2816
2818
Y
N
End

Fig. 28

05453.0002.00000

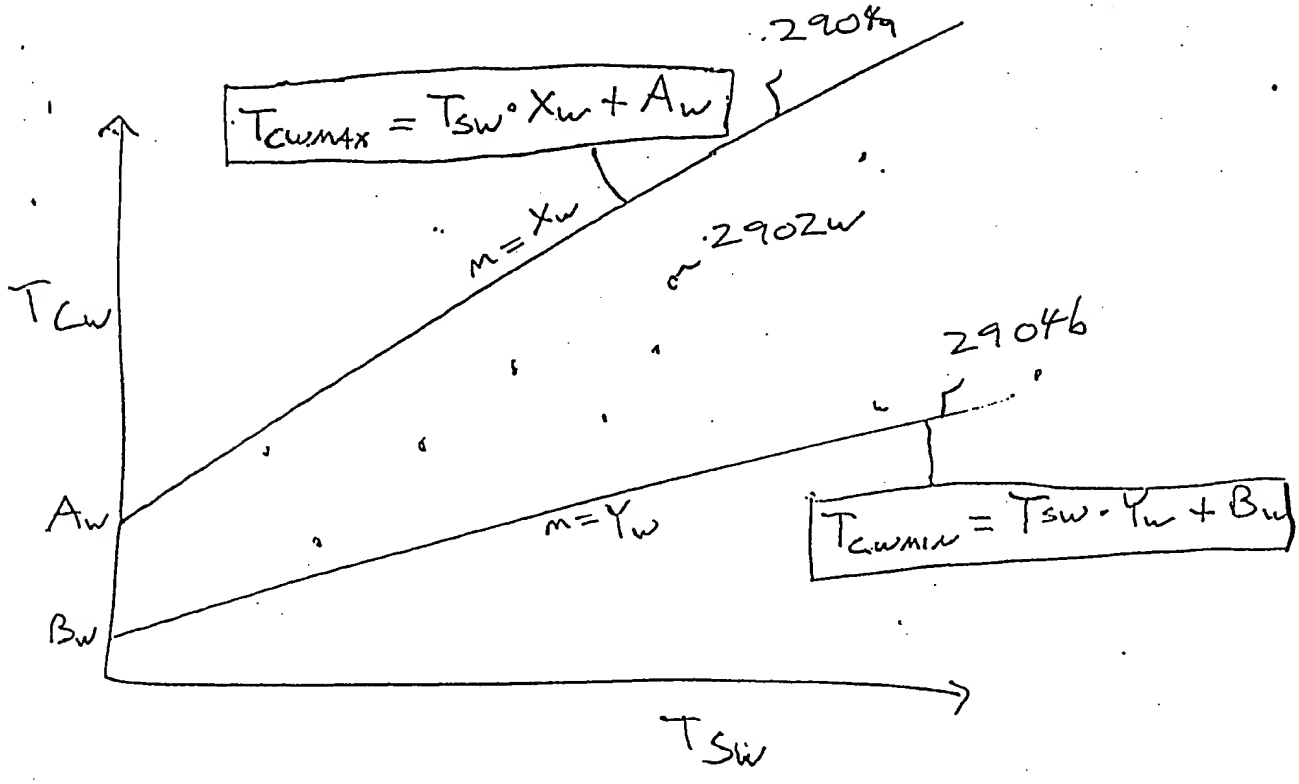


Fig. 29A

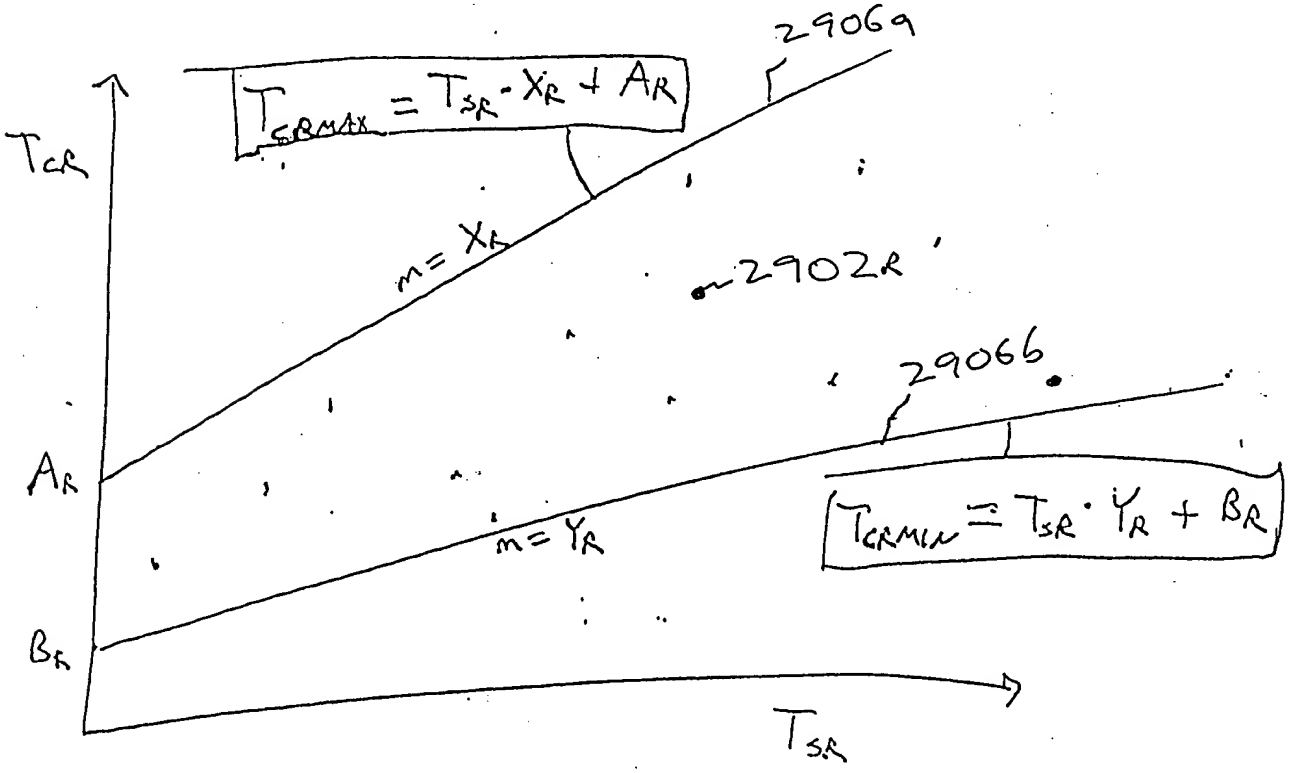


Fig. 29B

007280'96TEh960

2608

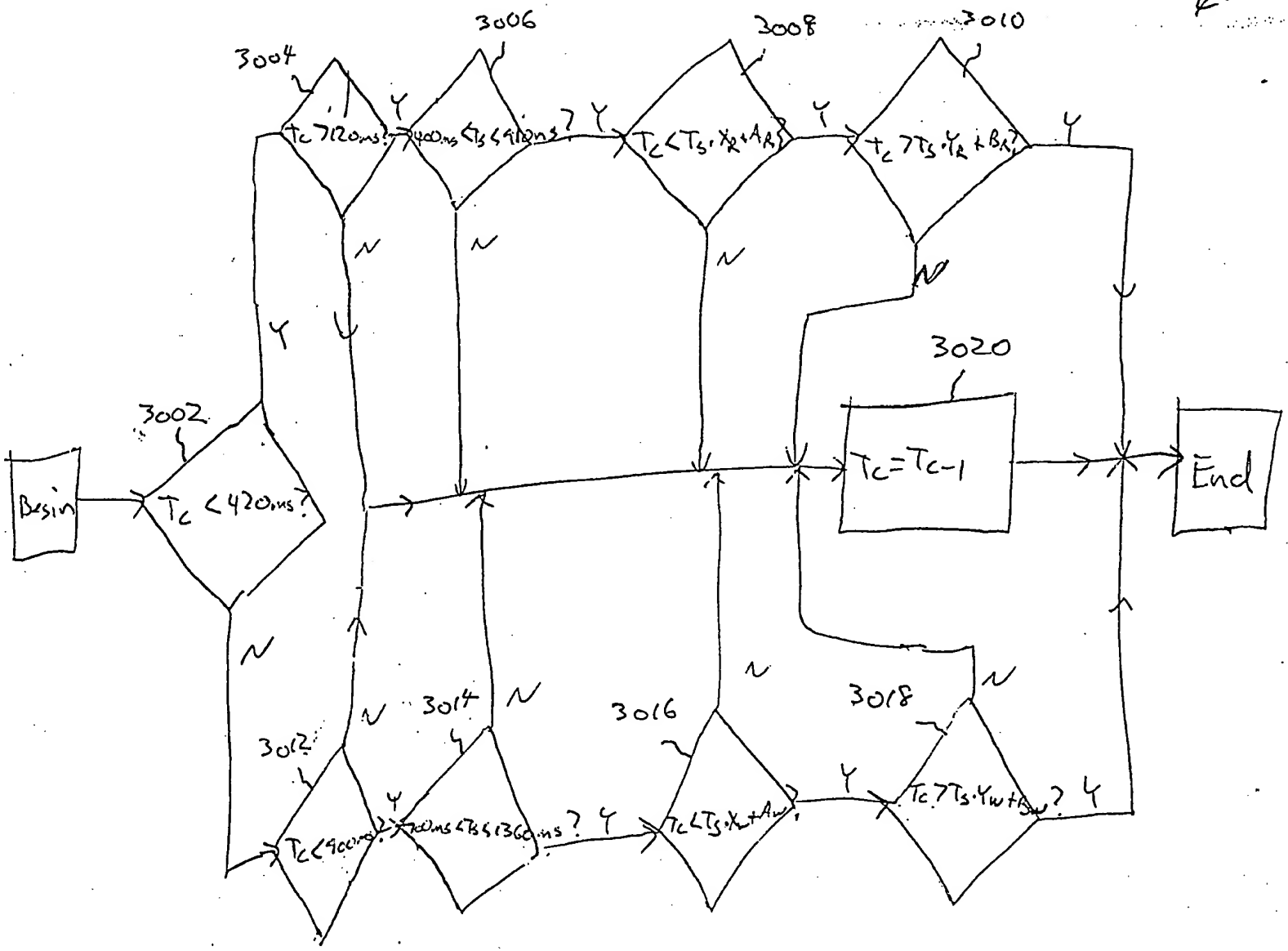


Fig. 30

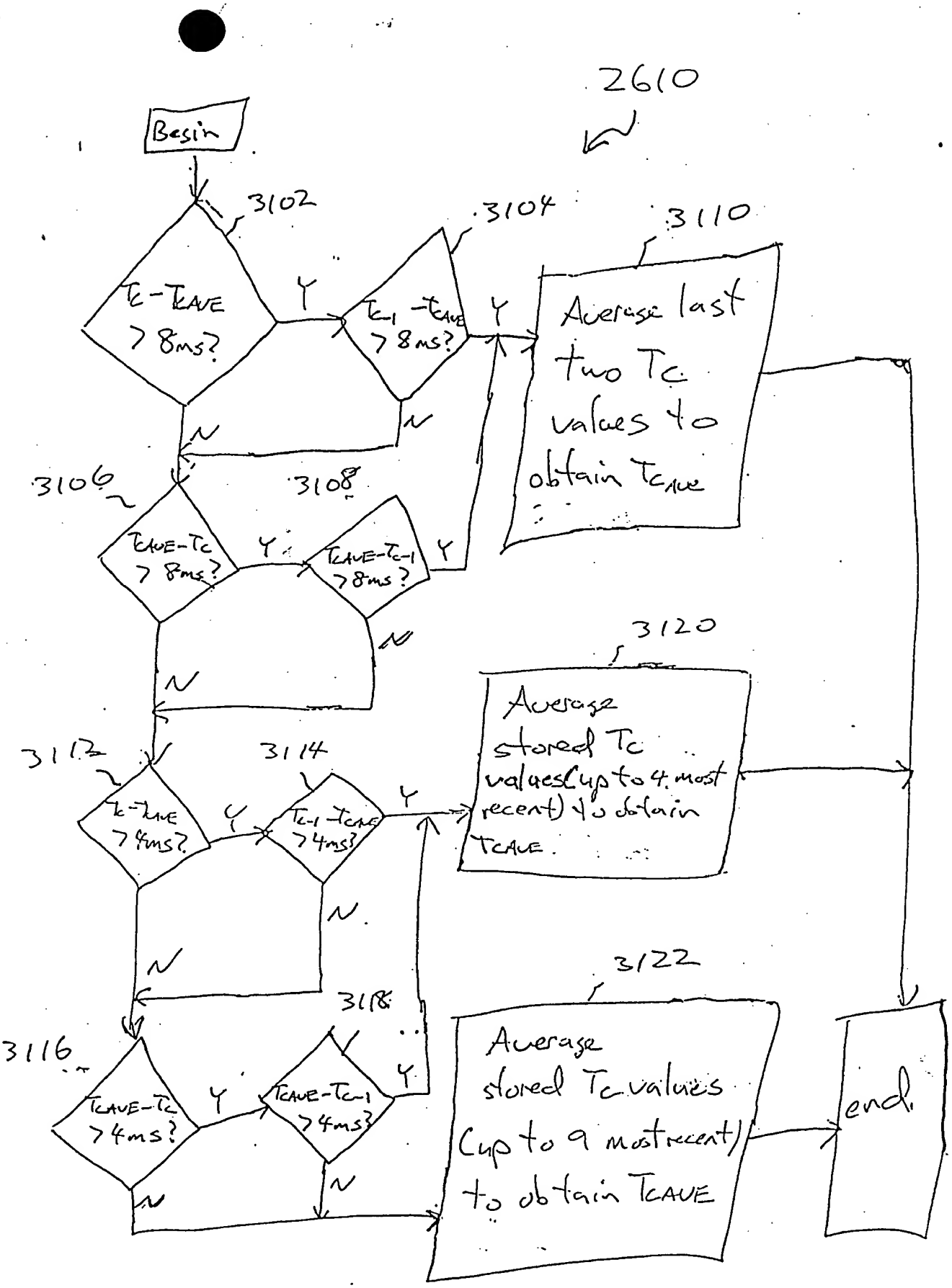

2610
Begin
3102
Tc-TAVE > 8ms?
3104
Tc-1 -TAVE > 8ms?
3110
Average last two Tc values to obtain TAVE
3106
TAVE-Tc > 8ms?
3108
TAVE-Tc-1 > 8ms?
3120
Average stored Tc values (up to 4 most recent) to obtain TAVE
3112
TAVE-Tc > 4ms?
3114
Tc-1 -TAVE > 4ms?
3122
Average stored Tc values (up to 9 most recent) to obtain TAVE
3118
3116
TAVE-Tc > 4ms?
TAVE-Tc-1 > 4ms?
end
Y
N

Fig. 31

6044300-051204

Fig. 32A

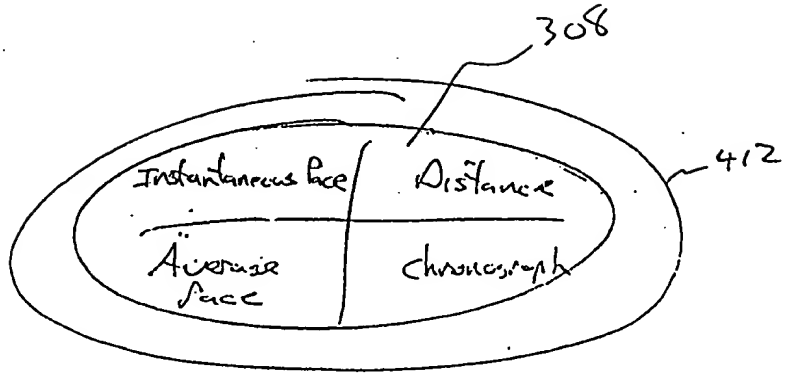


Fig. 32B

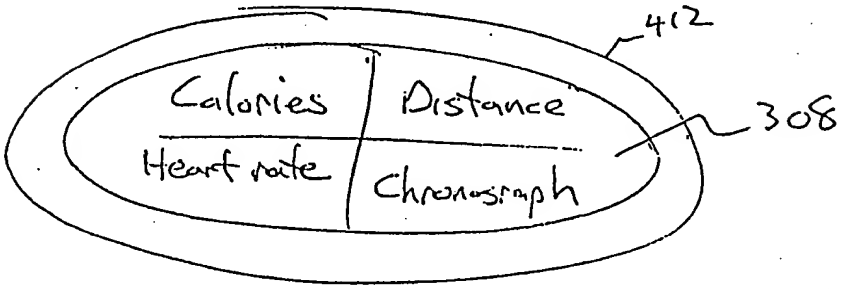


Fig 32C

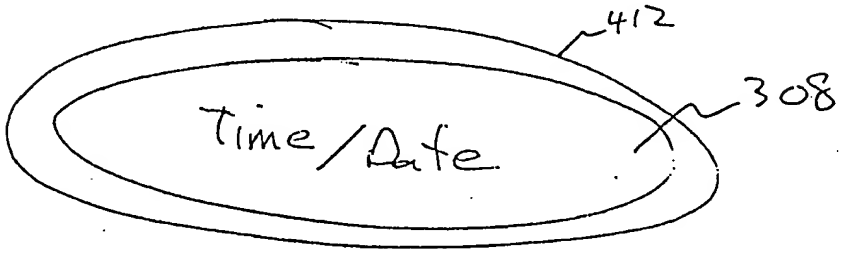


Fig. 32D

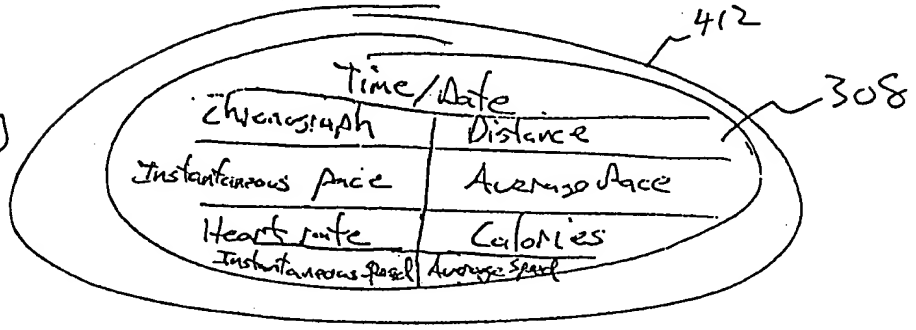
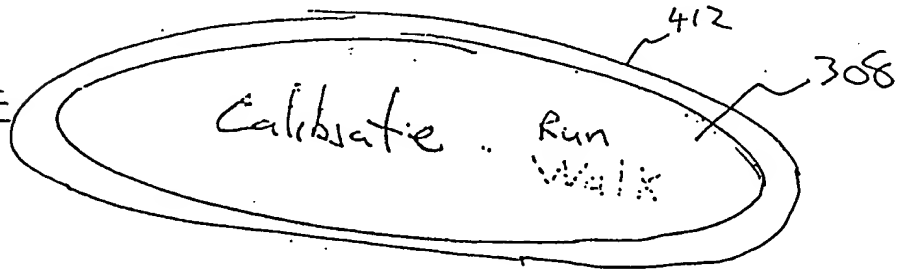


Fig. 32E



08529.0050-00000

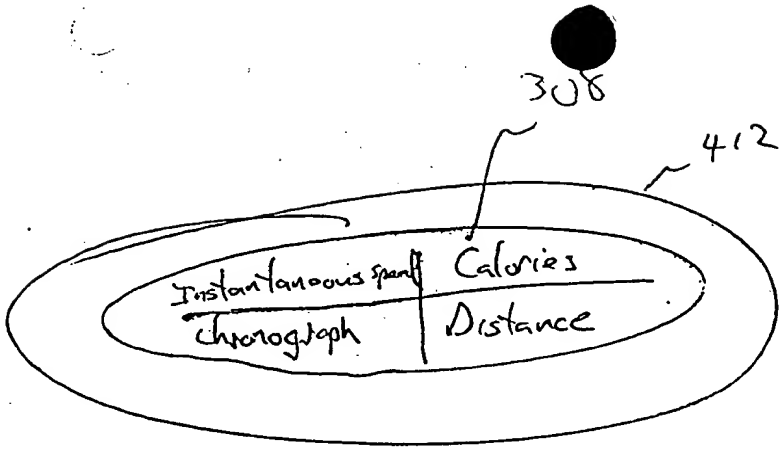


Fig. 32F

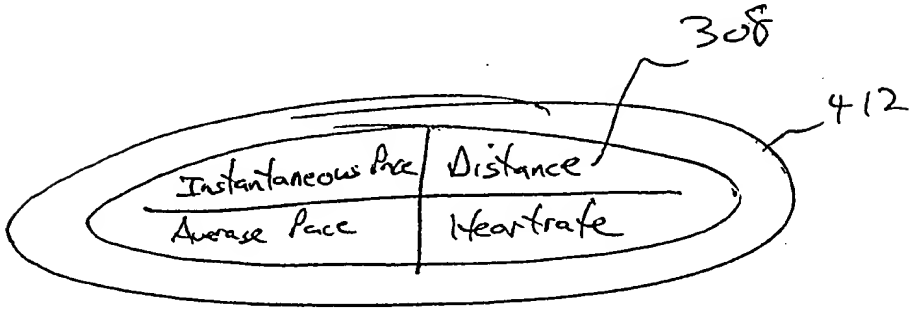


Fig. 32G

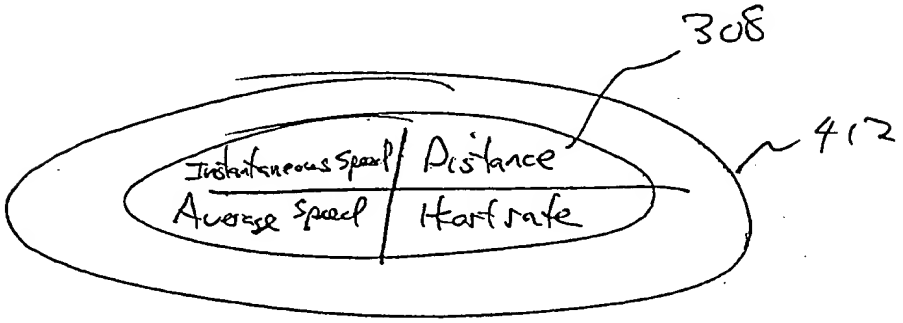


Fig. 32H

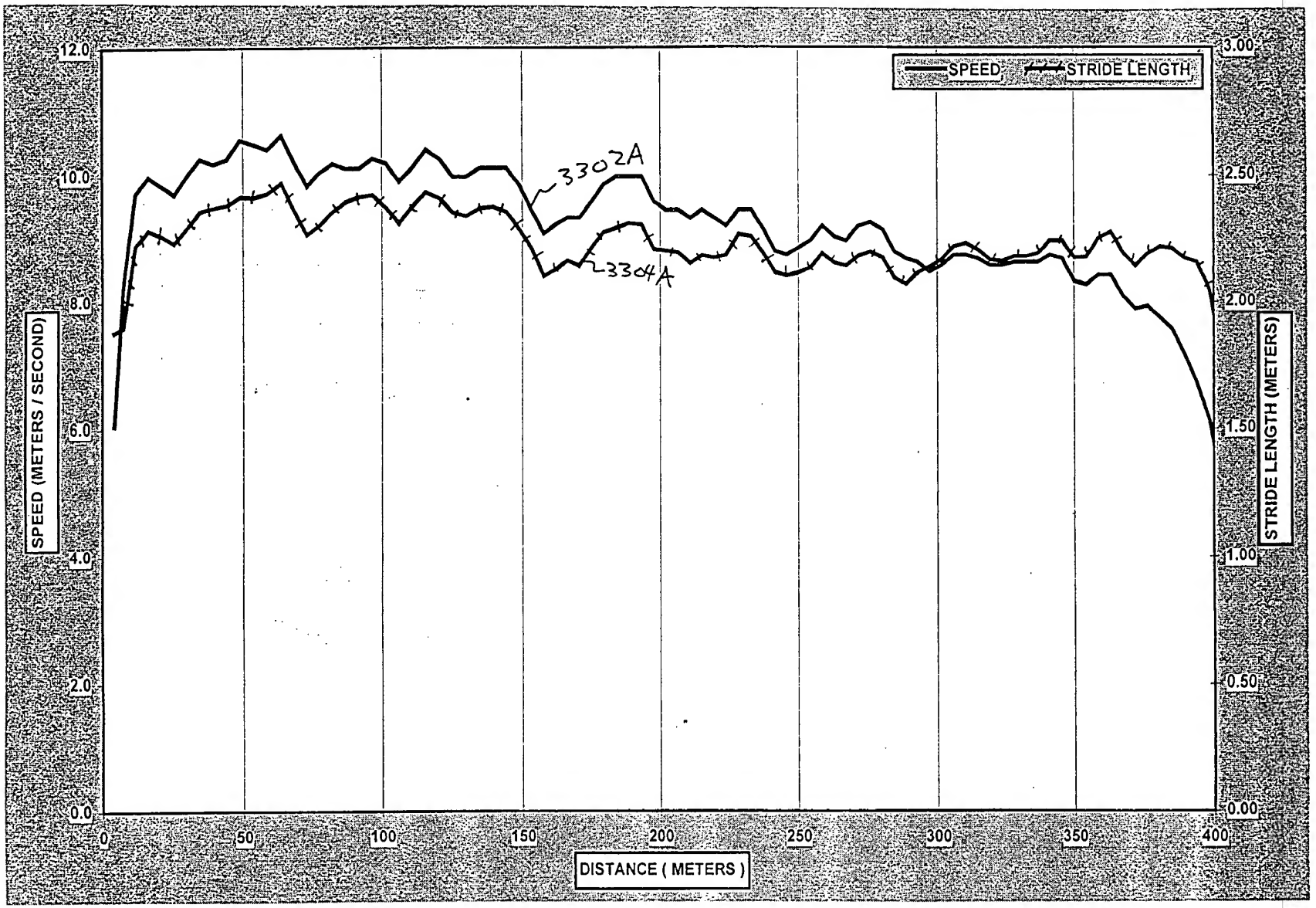
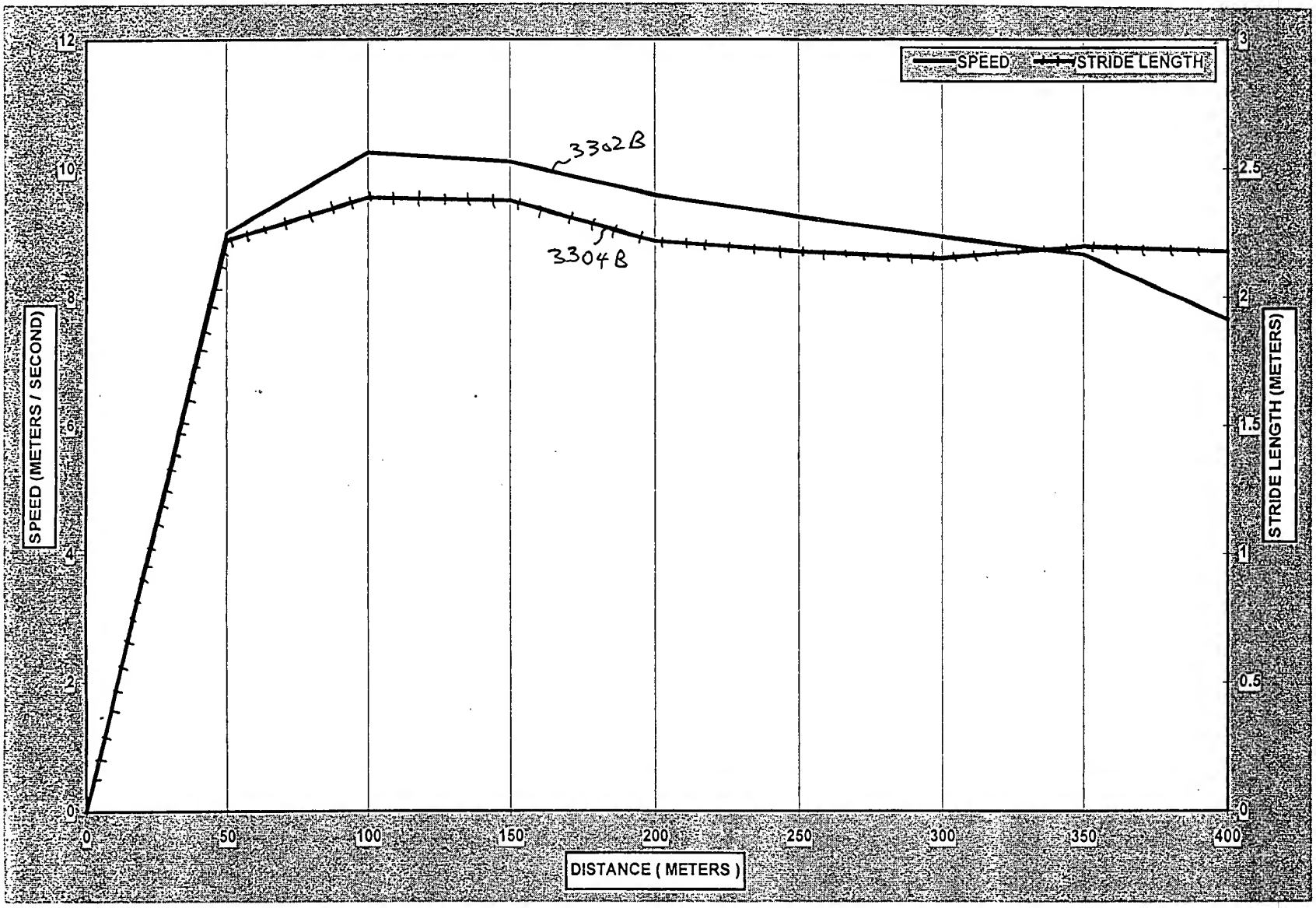


Fig. 33

95.082100


SPEED
STRIDE LENGTH
3302B
3304B
SPEED (METERS / SECOND)
STRIDE LENGTH (METERS)
DISTANCE (METERS)
0
2
4
6
8
10
12
0
0.5
1
1.5
2
2.5
3
0
50
100
150
200
250
300
350
400

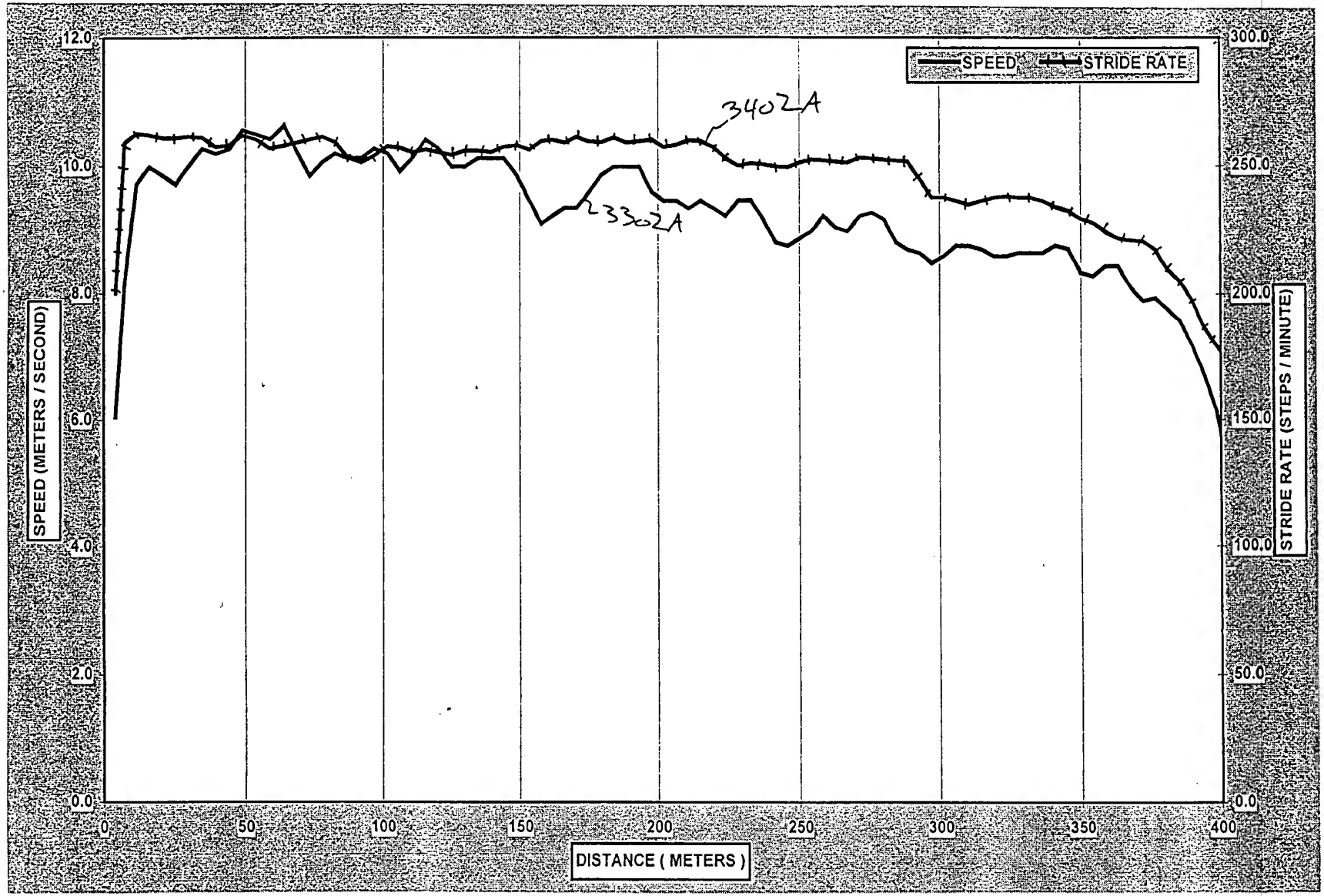
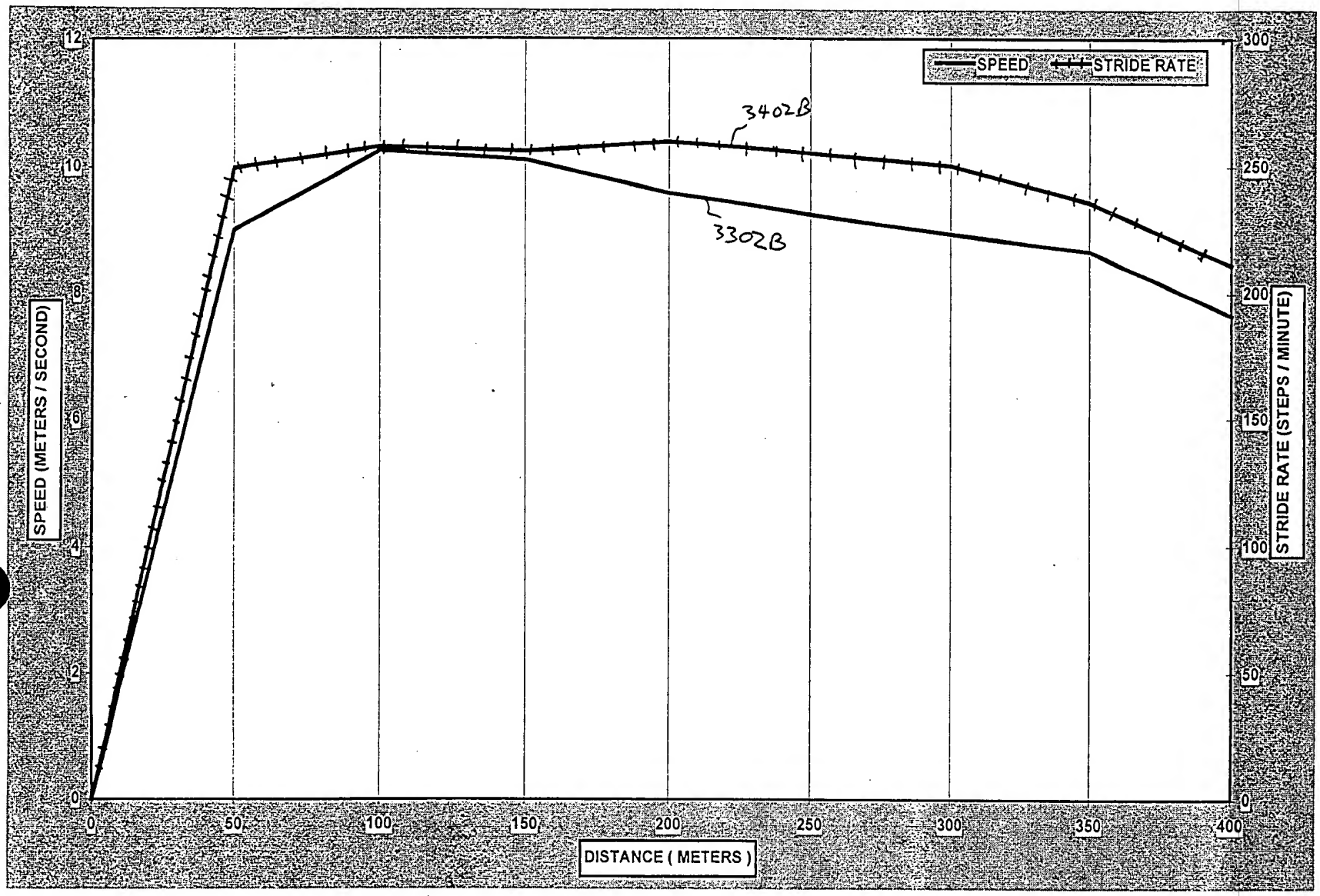
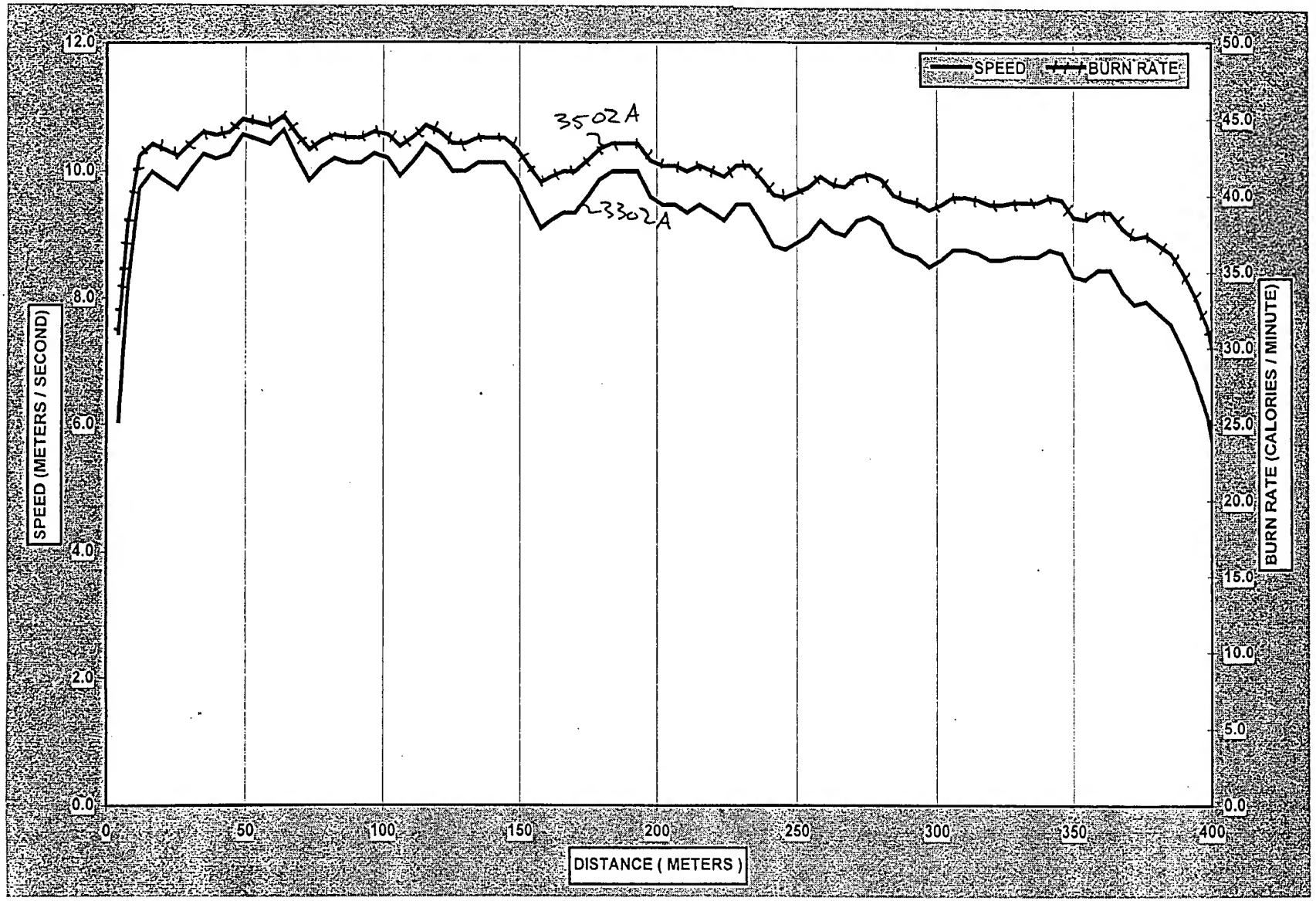


FIG 34A .082100


SPEED
STRIDE RATE
3402B
3302B
SPEED (METERS / SECOND)
STRIDE RATE (STEPS / MINUTE)
DISTANCE (METERS)
0
2
4
6
8
10
12
50
100
150
200
250
300
350
400
50
100
150
200
250
300


SPEED
BURN RATE
3502A
3302A
SPEED (METERS / SECOND)
BURN RATE (CALORIES / MINUTE)
DISTANCE (METERS)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
150.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
50
100
150
200
250
300
350
400

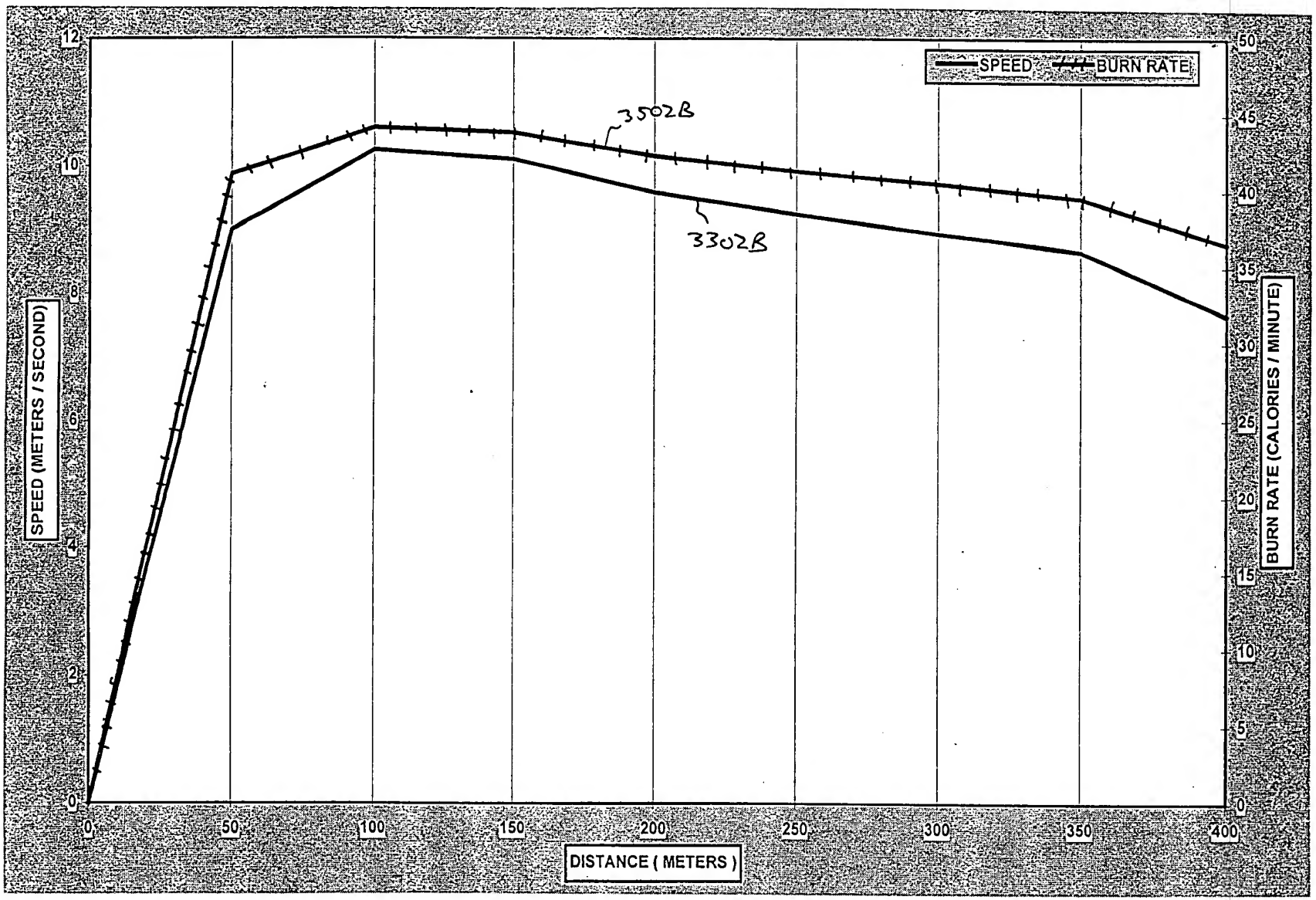


Fig 13

09/082100

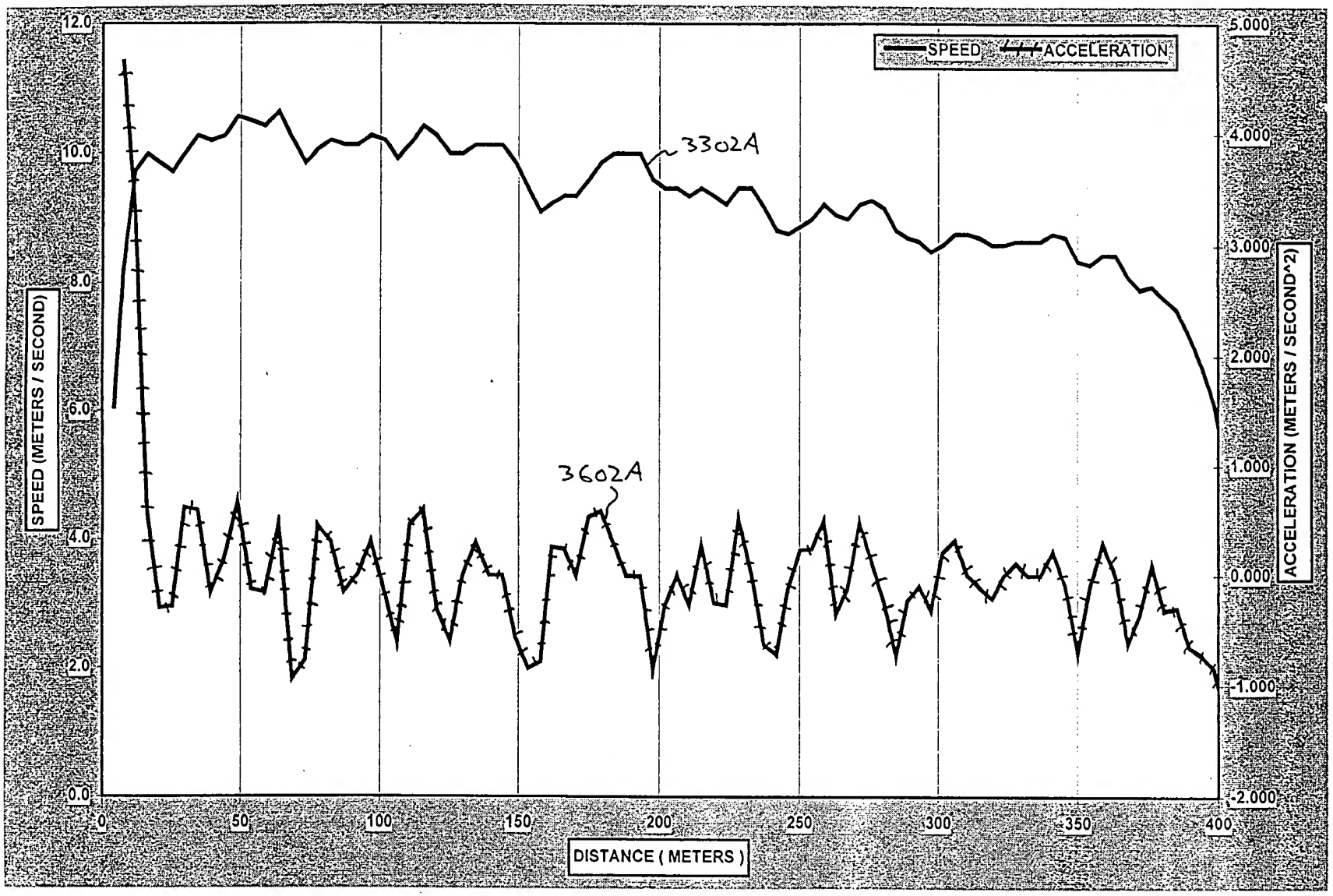

SPEED
ACCELERATION
3302A
3602A
SPEED (METERS / SECOND)
ACCELERATION (METERS / SECOND^2)
DISTANCE (METERS)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
5.000
4.000
3.000
2.000
1.000
0.000
-1.000
-2.000
0
50
100
150
200
250
300
350
400

Fig. 3A

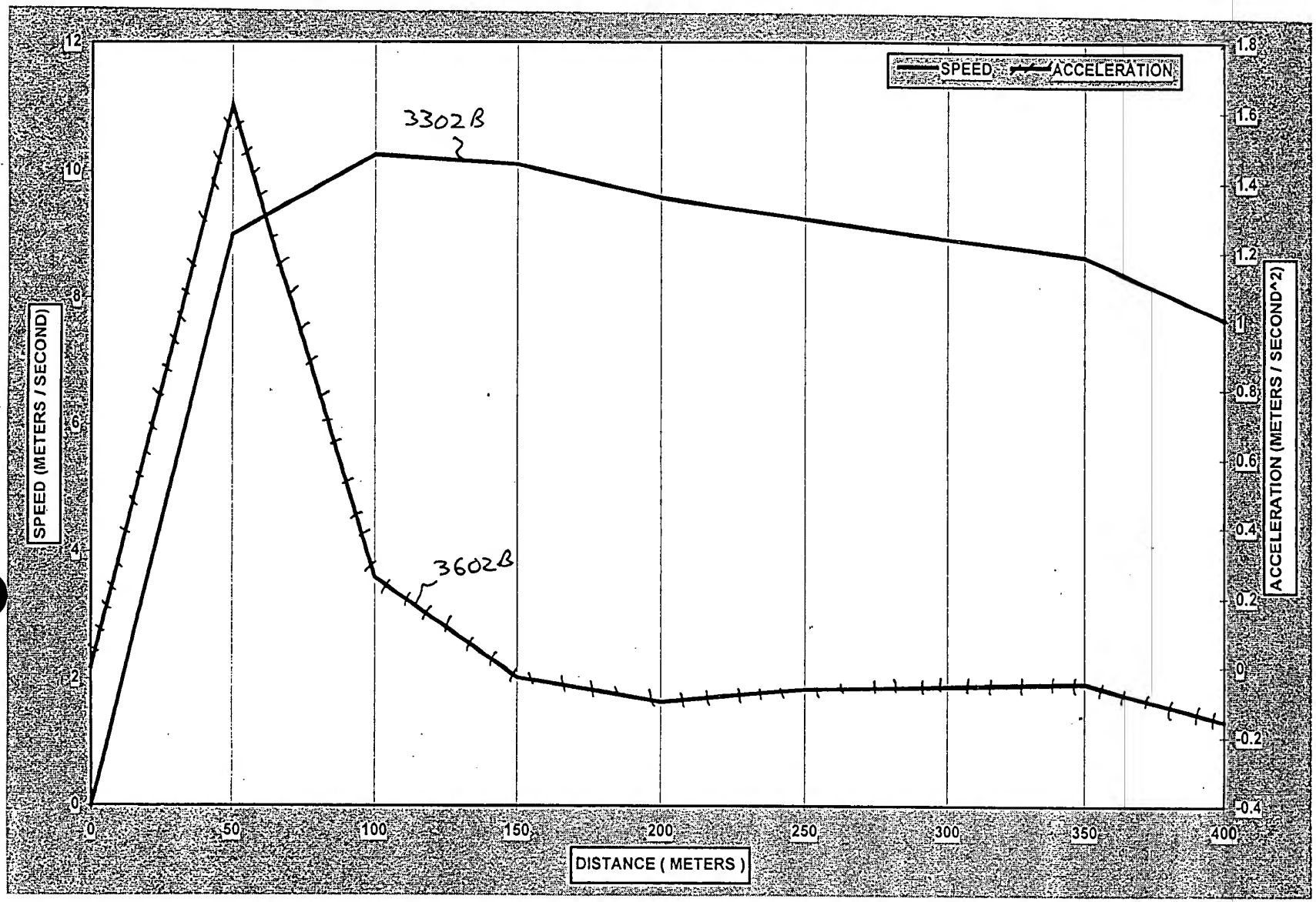


Fig 36B

09/693,558.082100

SPLITS

Distance	Race Time	Split Time	Average Speed	Average Speed	Average Stride Length	Average Stride Length		Average Stride Rate	Average Burn Rate	Total Calories	Acceleration
meters	seconds	seconds	meters/second	MPH	meters	feet	inches	steps/minute	Calories/minute	Calories	meters/second^2
0	0	0	0	0	0	0	0	0	0	0	0
50	5.6	5.6	9.0	20.1	2.22	7	3	249.5	41.1	3.7	1.621
100	10.4	4.9	10.3	22.9	2.39	7	9	257.9	44.2	7.3	0.257
150	15.4	4.9	10.1	22.6	2.37	7	9	256.1	43.9	10.9	-0.030
200	20.6	5.2	9.6	21.4	2.22	7	3	259.7	42.3	14.6	-0.100
250	26.0	5.4	9.2	20.7	2.18	7	1	255.1	41.3	18.3	-0.063
300	31.6	5.6	8.9	20.0	2.15	7	0	250.4	40.5	22.1	-0.054
350	37.4	5.8	8.7	19.4	2.20	7	2	236.1	39.6	25.9	-0.048
400	43.9	6.5	7.6	17.1	2.18	7	1	211.1	36.5	29.9	-0.155

Fig. 37

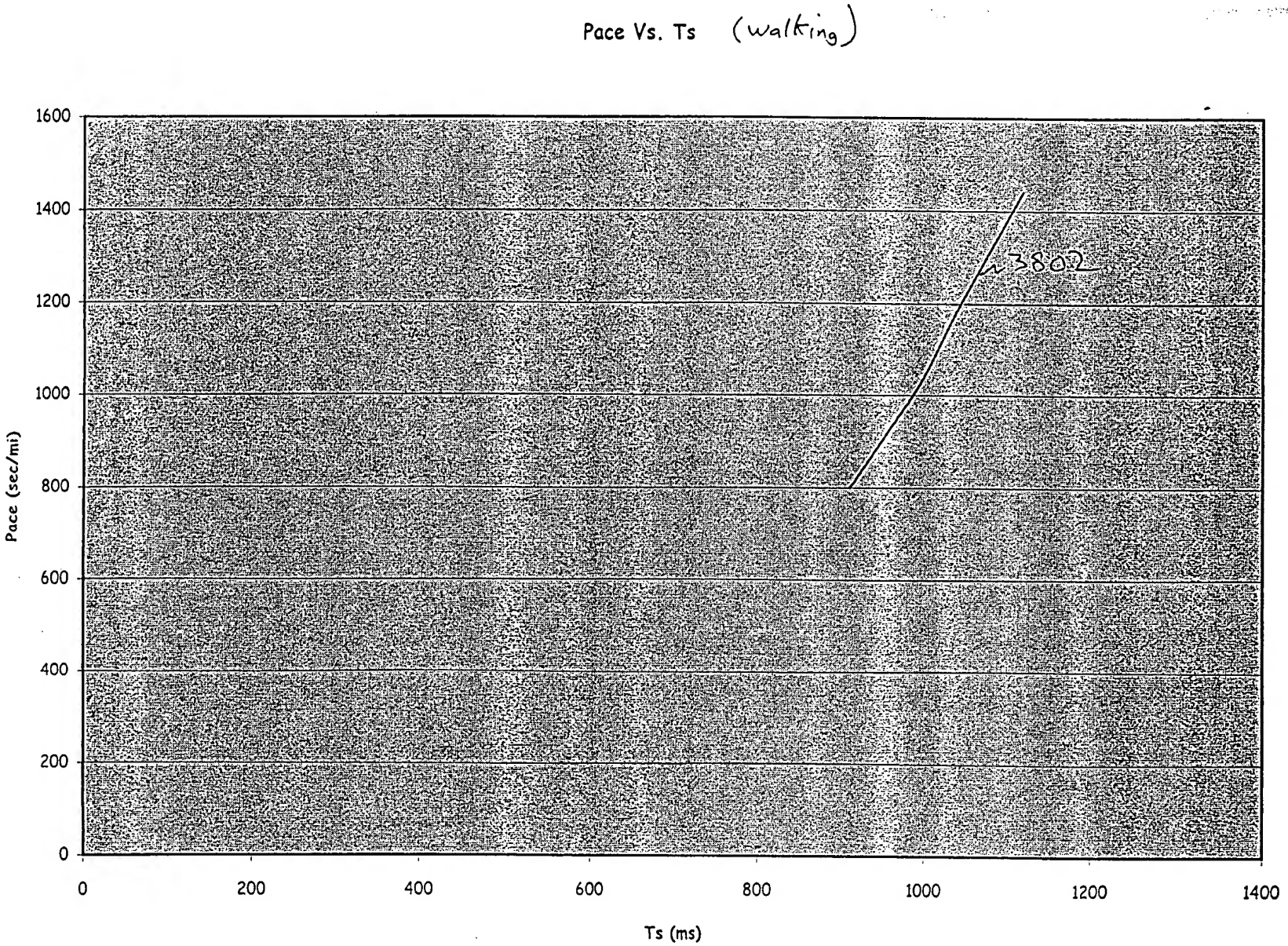
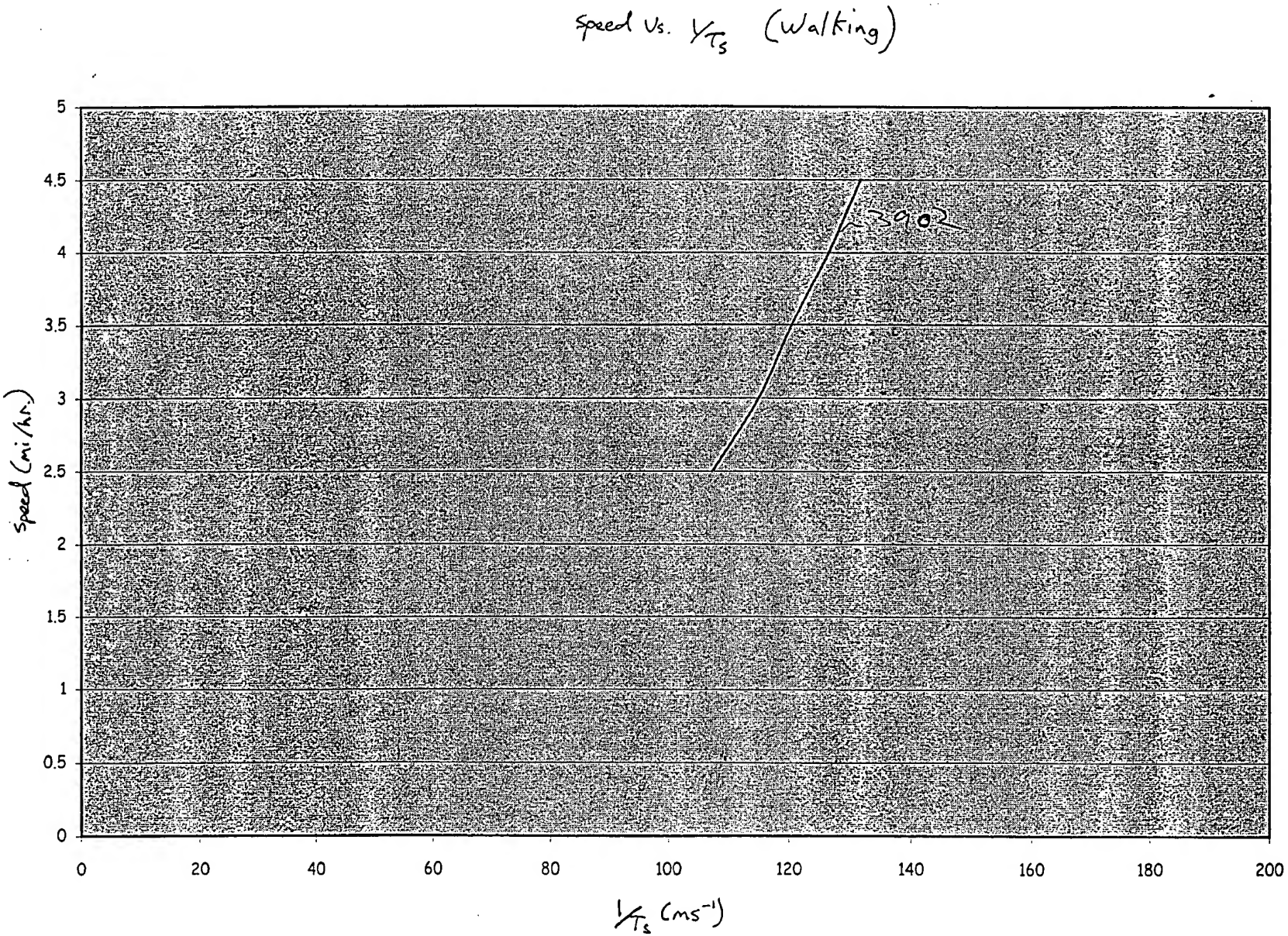


Fig. 38

BEST AVAILABLE COPY



BEST AVAILABLE COPY

Fig 39

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Speed (mph)	Pace (Seconds/Mile)	Tc (ms)	Ts (ms)	Average Ground Force (lbs)	Steps Per Mile	Stress Per 1/10 Mile (lbs)	Steps Per Minute	Stress Per Minute (lbs)
5	720	302	730	181	986	17881	82	14901
6	600	270	702	195	855	16667	85	16667
7	514	254	676	200	760	15177	89	17717
8	450	234	652	209	690	14423	92	19231
9	400	214	638	224	627	14019	94	21028
10	360	204	618	227	583	13235	97	22059
11	327	190	600	237	545	12908	100	23684

Fig. 40

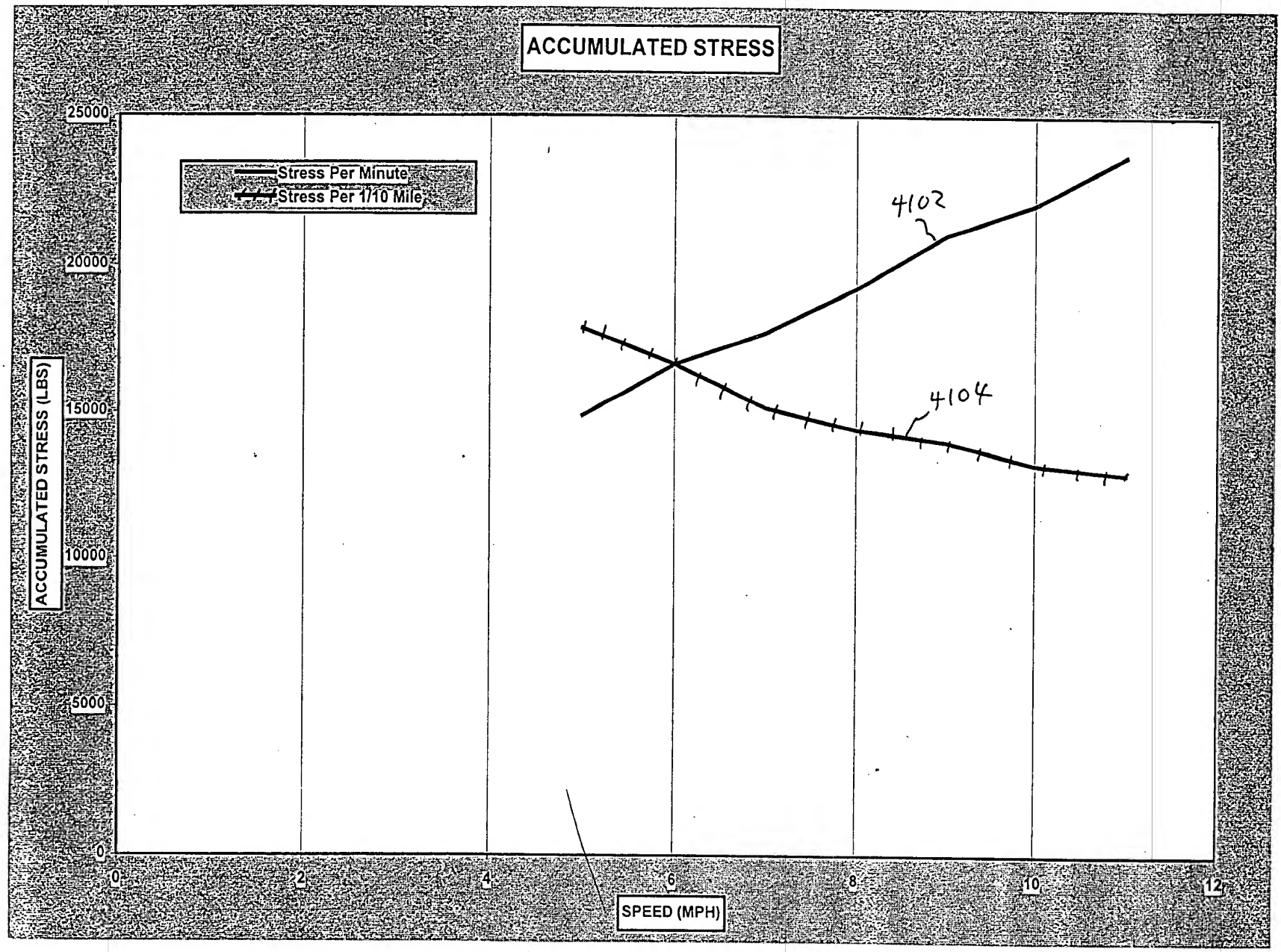

Fig 4

09649195.082100